

30 March 2015

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## Re: Consultation on the Final Report of the Financial System Inquiry

Challenger Limited is Australia's largest provider of annuities and seventh largest fund manager with a corporate vision to provide Australians with financial security in retirement. Challenger's life company is a substantial investor in infrastructure, property and domestic corporate bonds.

This submission supports the following recommendations of the Inquiry:

### 1. Resilience

#### Recommendation 6: No ex ante fee on the Financial Claims Scheme

- In addition we propose that the cap on the FCS should be lowered to \$100,000 to reduce the distortions the Scheme has created.
- Two reports are attached, one discussing the distortions created by the FCS and the other modelling the costs to the economy and households of those distortions.

### 2. Superannuation and Retirement

#### Recommendation 9: Primary objective of the superannuation system to provide income in retirement to substitute or supplement the Age Pension.

- This submission notes that diverting superannuation savings to other purposes such as home ownership will have adverse implications for retirement income adequacy and that investing superannuation funds for purposes other than providing retirement incomes, such as supporting particular industries will impact allocative efficiency and adversely impact economic performance.
- This submission discusses the subsidiary objectives in detail distinguishing between those that improve sustainability of retirement incomes for the individual and those that improve the sustainability of the retirement income system.

#### Recommendation 11: CIPR and remove impediments from DLAs

- This submission discusses the need for CIPR's to combine an ABP and a lifetime annuity to provide reliable income streams which manage longevity, market and inflation risks.
- This submission proposes flexibility for fund trustees in designing CIPRs to meet the retirement needs of their members.
- This submission proposes APRA develop prudential standards for CIPRs to ensure that all retirement risks are appropriately managed.
- This submission notes that the FSI supports the current Treasury process to remove the impediments to the provision of DLAs.

### 3. Innovation

#### **Recommendation 19: Data access and use**

- This submission discusses the opportunities to use ATO data in a form which protects the confidentiality of individual taxpayers, to assist superannuation funds to better understand the likely needs of their members and to support academic research and evidence based public policy making.

### 4. Consumer Outcomes

#### **Recommendation 23: Innovative disclosure**

- This submission discusses the potential use of visual presentations of retirement risks.

#### **Recommendation 25: Raise the competency of advisers**

- This submission provides an update on a new UNSW Retirement Planning course and the need to require higher levels of competency in ASIC's review of RG146.

### 5. Regulatory System

#### **Recommendation 30: Strengthen the focus on competition in the financial system**

- This submission discusses the need for ASIC to be given a competition mandate in its legislation and for ASIC and APRA to report regularly on their approaches to dealing with competition issues.
- This submission proposes that the ACCC be responsible for regular reviews of competition in the financial services industry.

### 6. Significant matters (FSI Appendix 1)

#### **Recommendation 33: Strengthen the domestic corporate bond market**

- This submission notes post-retirement products will drive demand for domestic corporate bonds.

#### **Recommendation 35: Differentiate finance company products from those of ADIs**

- This submission proposes action to ensure product providers use a standard set of product definitions which are matched to critical product features to ensure transparency about risks.

#### **Recommendation 37: Superannuation fund member engagement**

- This submission discusses the superiority of stochastic modelling for projecting retirement incomes.
- This submission proposes a simpler standard methodology for providing all fund members with a projection of retirement income based on a risk free real return and conservative mortality.

# 1. Resilience

## Recommendation 6: Financial Claims Scheme

Maintain the ex poste funding structure of the Financial Claims Scheme for authorised deposit-taking institutions. The Final Report of the FSI, at page 37, also notes “the cap of \$250,000 is relatively high compared to other countries.”

### 1.1 Positions taken by Challenger, CBA and the FSI on the FCS

Challenger supports maintaining the current ex poste funding model and lowering the cap to \$100,000.

Challenger notes that the CBA's final submission, at pages 64 and 65, adopted the same pair of positions; “*The FCS claim threshold should be lowered to \$100,000. An ex ante fee should not be introduced.*”

The Final Report of the FSI noted that an ex ante funding model has a number of appealing features, including being based on a user-pays principle, and building a fiscal buffer which could be used for wider ADI resolution purposes such as transferring deposits to a new institution as set out in Recommendation 5.

However, at page 83, the FSI gave greater weight to three other factors:

- “*An ex-ante levy would be an ongoing cost for all ADIs. In contrast, the current ex post model only imposes a levy if the FCS is triggered and insufficient funds are recovered through liquidation to recoup the costs.*”
- “*Because Australia's depositor preference arrangements reduce the risk of an ADI's assets being insufficient to meet insured deposits, the case for an ongoing levy is less justified.*”
- Other recommendations of the FSI “*would further strengthen the resilience of the Australian banking sector by reducing the risk of failure and mitigating the costs of failures that do occur. If adopted, these recommendations weaken the case to charge an ex ante levy for the FCS.*”

The FSI's view that the cap of \$250,000 is relatively high compared to other countries is confirmed in an article in the December Quarter, 2011 RBA Bulletin, *Depositor Preference in Australia*, which at page 52, includes a table containing the arrangements for comparable jurisdictions with most having caps equivalent to roughly A\$100,000 in local currency terms. Only the US offers equivalent coverage to that currently applying in Australia.

### 1.2 Independent analysis of the FCS

Challenger commissioned Prof Kevin Davis and Martin Jenkinson of the ACFS (Australian Centre for Financial Studies) to assess the FCS, *The Financial Claims Scheme, an Assessment of the Scheme's Broader Economic Impact, August 2013*. They concluded that the FCS had created a number of distortions and needed to be reviewed. This report is at Appendix A.

Challenger also commissioned Chris Murphy of independenteconomics to model the effects on the Australian economy and households of the distortions created by the FCS and the options for modifying the Scheme to reduce those costs. His report, *Economic impacts of reforming the Financial Claims Scheme, 25 August 2014*, is at Appendix B.

### **1.3 FCS creating major distortions in savings, investment and lending markets**

A principal concern is the impact that the lack of competitive neutrality of the current FCS is having on savings, investment and lending markets. These distortions impact allocative efficiency and are therefore a drag on economic activity.

Rather than retail investors considering the risk return trade-off across the spectrum of potential investments available to them, many accept prevailing fixed term deposit rates given the comfort of an explicit government guarantee. This has resulted in a significant distortion of retail investments at the expense of investments in institutions and funds that are not ADIs. This has flow on effects limiting the availability of finance to households and businesses which otherwise would have been funded by non-bank financial institutions.

The Murphy report noted, at page 5, that; *“The availability of “free” insurance from ADIs can distort the choice of consumers between investing in ADI versus non-ADI financial institutions in favour of ADIs. This non-level playing field may lead to allocative inefficiency, with the ADI sector oversized and the rest of the financial sector undersized.”*

### **1.4 Moral hazard and gross contingent liabilities to government**

To the extent that a large component of savings are directed to ADIs motivated by the FCS, the moral hazard and taxpayer backed contingent liability is unnecessarily amplified.

The government has a gross contingent liability for the ADI component of the FCS of \$732.4 billion as at 30 June 2014 (MYEFO page 249). This is an excessive exposure to the FCS and an inappropriate use of the government’s balance sheet.

### **1.5 Ex ante fee ineffective in reducing distortions and moral hazard**

A fee of a handful of basis points will do little to address the distortions or moral hazard. The public policy conundrum is that to be effective in reducing the distortion and the moral hazard, the fee would need to be market referenced (e.g. credit default swap) and the result would be an unacceptable burden on the interest income of household savers. Therefore, the most effective means of reducing the market distortion, moral hazard and the government’s contingent liability is a substantial reduction in the cap to narrow the application of the FCS.

The Murphy report notes at page 25, that; *“Introducing premiums also reduces, but does not remove, the existing allocative inefficiency resulting from “free”, government-backed insurance. The insurance is no longer free, but it remains government-backed when such backing is not available to non-ADI financial institutions that compete with ADIs.”*

An ex ante fee is unlikely to change behaviour significantly so the distortion must be addressed directly by reducing the cap to no higher than \$100,000 per person.

### **1.6 The modelled FCS scenarios**

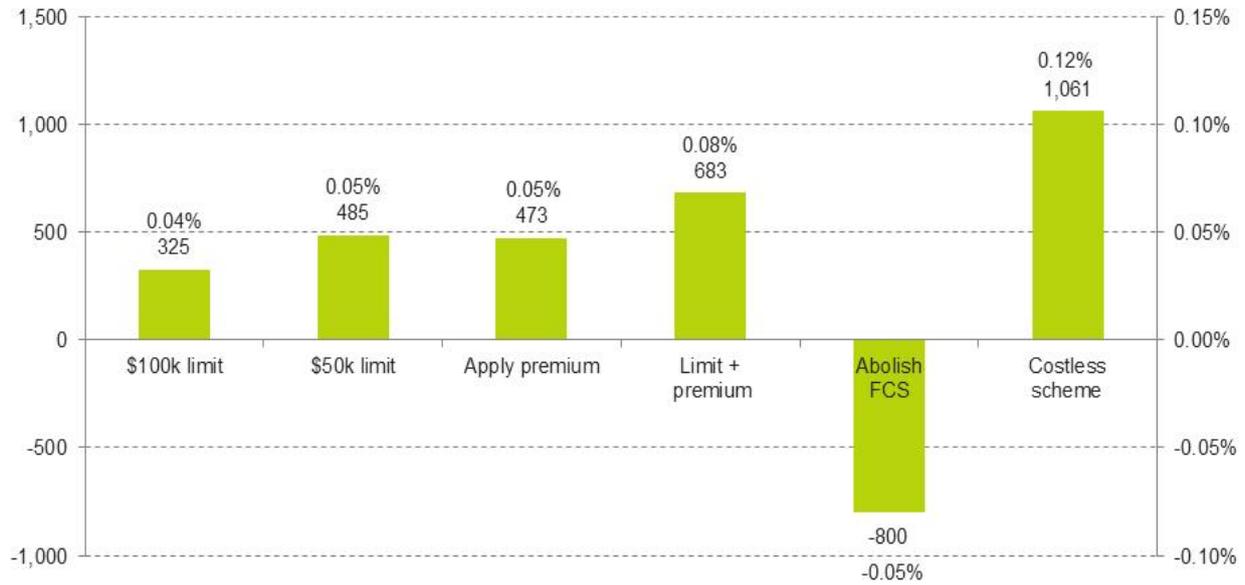
The Murphy Report modelling results are expressed in 2012-13 terms, showing the annual benefit of each scenario after the economy has fully adjusted to its economic shock. This is appropriate because economic policies should be judged against their lasting effects on the economy, not just their effects in the first one or two years.

The modelling of changes to the cap included another adjustment to the FCS, removing the ability for a depositor to split very large deposits amongst a number of institutions to obtain a government guarantee on a multiple of the cap. This issue was not taken up by the FSI, possibly for reasons of administrative complexity.

Reforming the FCS by lowering the insured threshold and closing the account splitting loophole would lower the moral hazard and allocative inefficiency costs of the FCS. This generates a sustained gain in consumer living standards on an annual basis of \$325 million with a reduction in the threshold to

\$100k, or \$485 million with a larger reduction in the threshold to \$50k. Similarly, reducing the insured threshold provides an ongoing boost to the level of GDP. This boost is 0.04 per cent or 0.05 per cent, depending on the extent of the reduction in the threshold.

**Effects of FCS policies on Australian living standards (\$million, 2012-13 terms) and on real GDP (%)**



Source: independenteconomics, extended CGE model

## 2. Superannuation and retirement incomes

### Recommendation 9: Objectives of the Superannuation System

Seek broad political agreement for, and enshrine in legislation, the objectives of the superannuation system and report publicly on how policy proposals are consistent with achieving these objectives over the long term.

The FSI proposed that the primary objective of the superannuation system be defined as:

*“To provide income in retirement to substitute or supplement the Age Pension”.*

Challenger supports setting provision of retirement income as the primary objective for the superannuation system. This objective recognises the role of the Age Pension as a means tested safety net and the superannuation system’s role in raising the living standard of retirees above that safety net. It recognises that by providing retirement income the superannuation system should reduce both the proportion of the retiree population requiring Age Pension support and Age Pension outlays to part pensioners.

### 2.1 The primary objective

This primary objective sets as the priority for public policy for the superannuation system the provision of income in retirement above other uses by individuals of their superannuation savings such as a deposit for a first home or to reduce debt incurred in higher education. Such initiatives would require a higher level of contributions to achieve the same levels of retirement adequacy that are now possible without a wider range of uses of superannuation savings. It also sets as a priority the investment of superannuation savings to provide retirement income above the use of those savings as a source of funding for other economic objectives such as infrastructure. This is not to suggest that super funds should not invest in particular sectors, but that there should not be an allocation chosen or mandated for purposes other than providing retirement incomes. Arbitrary allocations to particular sectors will reduce allocative efficiency and result in lower economic performance

The primary objective of the superannuation system providing retirement income is central to the rationale for providing concessional tax treatment for contributions, earnings and benefits as well as the co-payment for low income earners. If the superannuation system does not have a primary purpose of delivering retirement incomes it is simply a subsidised investment vehicle which, like arbitrary allocations of investments to particular sectors, will reduce allocative efficiency and result in lower economic performance.

A superannuation system with a primary objective of providing income to substitute or supplement the Age Pension will enhance living standards in retirement, provide increased financial security, help retirees maintain their non-superannuation assets and assist them to achieve their estate planning objectives.

This objective of providing more reliable retirement income streams does not come at the expense of other wealth management objectives such as estate planning. Watson Wyatt has done actuarial investigations, which were attached to Challenger’s first submission to the FSI (*Watson Wyatt, Retirement Income Modelling, 2 September 2009*) that show that the expected outcome from an ABP with a guaranteed lifetime annuity is superior (providing higher minimum and maximum outcomes) than an ABP with no annuity. Using a reverse mortgage metric to maintain target income, partial annuitisation was also found to assist retirees in achieving more of their estate planning objectives by consuming less of their non-superannuation assets if their ABP failed.

The FSI identified a number of subsidiary objectives of the superannuation system. These can be divided into two groups; the first group are those that relate to how well the superannuation system achieves its primary objective of delivering retirement income for individuals. The second group are objectives that relate to the sustainability of the superannuation system so that it can continue to deliver reliable income to individuals. It is worth setting out why these are appropriate subsidiary objectives for the superannuation system.

## 2.2 Subsidiary objectives directly relating to individuals

### 2.2.1 Smoothing Consumption

The first subsidiary objective is to facilitate consumption smoothing over an individual's life. Challenger supports this subsidiary objective and notes that the smoothing of consumption has a number of aspects:

- The 9.5% SG (Superannuation Guarantee) is a component of employee remuneration and a deferral of income for use in retirement.
- Individuals have the option of forgoing further income to make concessional contributions, up to a limit, and non-concessional contributions up to a higher limit, to facilitate further smoothing of income over their lifetime.
- The superannuation system should encourage retirees to opt for a sustainable real income stream consistent with their balance on retirement and expected longevity.
- Pooling of longevity risk and transferring longevity, inflation and market risks to a third party better able to manage them can assist with smoothing income to the end of life.

### 2.2.2 Managing Retirement Risks

Challenger supports the subsidiary objective of properly managing retirement risks. This is critical for superannuation fund members. Once an individual stops working there are limited, if any, options available to them to rebuild capital and recover from adverse market events or to make further provision for unanticipated longevity or inflation.

#### 2.2.2.1 Longevity Risk

The key risk for retirees is how long they will live. Without pooling this uncertainty is likely to cause a misallocation of retirement savings either by overspending or underspending, with both likely to result in reduced living standards.

There are two elements of longevity risk: idiosyncratic risk, being the risk that a single person lives longer than the expected average; and systematic risk, being the risk that the mortality experience in a pool of lives or across the whole population changes from levels previously expected.

A lifetime annuity addresses both idiosyncratic and systematic longevity risk by ensuring a certain income stream for life. Annuities require fewer savings to provide the same level of income for a long life than would be the case without pooling.

The Australian Government Actuary's paper, *Towards More Efficient Retirement Income Products*, commissioned by the Financial System Inquiry, says at page 27; *"Based on the assumptions adopted here (that is, the life annuity pricing assumptions and the assumed investment and inflation environment), the life annuity outperforms the account-based pension in most years."*

#### 2.2.2.2 Market Risk (including Sequencing Risk)

Market risk, amongst other things results from the volatility of asset prices and returns. In retirement a critical subset of market risk is sequencing risk. Sequencing risk relates to the timing of investment returns.

Sequencing risk is a major risk early in retirement. With the requirement to draw a pension, any significant adverse market event close to, or in the first few years of retirement, will deplete the capital base, reducing the capacity to recover and therefore the amount and duration of the future income stream. In retirement the order of market outcomes can be more important than the average rate of return.

#### 2.2.2.3 Inflation Risk

Inflation is a major factor in retirement. This is the risk that the purchasing power of retirement savings does not keep up with the cost of living as it affects retirees. The retiree needs their income stream to have the capacity to sustain its purchasing power over more than two decades. Even at its current rate, inflation will have a substantial impact over a long period. The likelihood of periods of higher inflation or even deflation cannot be ignored.

Investment Trends Pty Ltd November 2014 *Retirement Income Report* found that inflation ranked highest at 44%, with multiple responses permitted, amongst Australians aged over 40 years, listing their worries related to their retirement.

### **2.2.3 Simple and Efficient and Provide Safeguards**

Challenger supports the subsidiary objectives of making the superannuation system simpler, more efficient and safer. Superannuation is compulsory and policy must contemplate how the superannuation system will engage with individuals. Many individuals will not seek to engage with the system themselves and a significant proportion will lack the aptitude and financial literacy to successfully do so. These individuals need policy settings that will provide a simple and efficient system with appropriate safeguards which will meet their needs. In Australia's choice superannuation environment those that have the financial skills and literacy or access to quality advice should be able to make more complex arrangements within broad regulatory parameters.

## **2.3 Subsidiary objectives relating to sustainability issues**

### **2.3.1 Invested in the best interests of super fund members**

Challenger supports the sole purpose test. Achieving the primary objective of providing retirement incomes requires that all superannuation funds be invested for that purpose. Investing even a proportion of superannuation funds with the specific intent of meeting another objective, such as to provide funding to a particular industry sector, will result in distortions, impacting allocative efficiency and detracting from both the economy's performance and the superannuation system's performance in meeting its primary objective. This reflects existing trustee duties which are well understood by them.

### **2.3.2 Alleviate financial pressures on government**

Challenger believes that providing sustainable retirement incomes can make a significant contribution to alleviating the fiscal pressures associated with Australia's ageing society. The 2015 IGR (Inter-Generational Report) shows that the projections for currently legislated Age Pension and aged care entitlements will together require an addition to Commonwealth outlays equivalent to 1.5% of GDP or 4.8% of total government outlays by 2054-55.

A Deloitte Access Economics Report commissioned by Challenger for the Tax Summit in 2011 showed that an average take up of \$10,000 of DLA (deferred lifetime annuity) premiums would reduce combined government outlays on the Age Pension and aged care by 2.6% in 2050, as a result of the effects of the Age Pension and aged care means tests. An earlier Access Economics Report commissioned by Challenger for the Henry Review showed that average annuitisation of 30% of starting retirement balances would reduce outlays by 2044-55 by 0.2% of GDP.

As CIPRs (Comprehensive Income Products for Retirement) are intended to include a pooled longevity component, these estimates may be indicative of the fiscal benefits that would be available from CIPRs.

### **2.3.3 Fully funded from savings**

Challenger believes that for fiscal, prudential and financial stability reasons the superannuation system should be fully funded.

Government should limit its contribution to retirement incomes to the cost of:

- the means tested Age Pension safety net;
- closely targeted superannuation tax concessions;
- contributions to the superannuation of government employees; and
- any unfunded government superannuation scheme liabilities.

Australia's defined contribution superannuation system has proved effective in accumulation to build a savings pool for retirement. Policy settings for retirement incomes should ensure that these accumulated savings are converted into products which are fully funded. Annuities and ABPs both provide pension income streams which are by their nature fully funded and do not involve any government guarantee.

### **2.3.3.1 Government should not become a provider of financial products**

Challenger believes that the Australian Government should not become a provider of retirement income products. From time to time there have been proposals for the government to offer annuities to top up the Age Pension and to provide savings products for the aged as well as home equity release schemes.

The proponents argue that the government has a very large balance sheet, a AAA credit rating and is able to borrow money at a comparatively low rates. However, Government provision of retirement income, saving and equity release products have a number of pitfalls:

- the actual risks and economic costs are the same as for the private sector;
- the government does not have an existing capability to provide the financial advice that would need to accompany the provision of such products;
- without a subsidy from other taxpayers, the income streams would be linked to the government bond rate and be lower than those offered by private providers which invest in higher yielding assets;
- it is likely that decisions by government on pricing and payments would quickly become separated - a situation which cannot last long in a commercial environment;
- in the case of equity release schemes there would be strong political resistance to the government recovering its capital;
- these products would result in government accepting an increased burden of funding additional retirement income; and
- innovation by private providers would be stifled.

These products and these risks can be better managed by private providers in an open market.

#### **Recommendation 11: The retirement phase of superannuation**

Require superannuation trustees to pre-select a comprehensive income product for members' retirement. The product would commence on a member's instruction, or the member can choose to take their benefits in another way. Impediments to product development should be removed.

## **2.4 Public offer superannuation funds to offer a CIPR**

Challenger strongly supports the proposal for all public offer superannuation funds to pre-select for their members a CIPR (Comprehensive Income Product for Retirement).

### **2.4.1 CIPR Features**

A CIPR should possess the following characteristics:

- An extremely high probability that the income stream will not fail, that is it will produce a significant and relatively smooth private income to the end of life.
- It will address the principal risks in retirement:
  - longevity risk;
  - market risk (particularly sequencing risk); and
  - inflation risk.
- It will be acceptable to retirees, that is:
  - sufficiently flexible in terms of providing some access to capital;
  - provides money to assist with aged care costs; and
  - recognises that the retiree may have estate planning objectives.

Those characteristics lead to retirement income solutions which are a combination of account based and pooled longevity income streams. The combinations could be drawn from ABPs (account based pensions), ILAs (immediate lifetime annuities), DLAs (deferred lifetime annuities), RCLAs (ruin contingent lifetime annuities) and immediate or deferred unguaranteed GSAs (group self-annuities).

Critical elements of a CIPR are maintaining exposure to the market over a long period while gaining the benefits of pooling longevity risk.

If one of the components of the CIPR is a guaranteed lifetime annuity it will provide protection against both the idiosyncratic and the systematic elements of longevity risk as well as market risk. If the guaranteed lifetime annuity is an immediate annuity it will provide protection against sequencing risk early in retirement. If the guaranteed lifetime annuity is indexed by the CPI it will also provide protection against inflation risk.

A layer of guaranteed income as part of a CIPR provides the following robust benefits:

- a significant component of the income stream will be guaranteed for life;
- pooling of longevity risk will reduce the cost of living longer than expected;
- the guarantee will be APRA regulated under the Life Insurance Act with prudential standards, supervision and life company capital standards;
- the longevity protection component will be non-commutable and attached to the life of the retiree;
- immediate lifetime annuities will help mitigate sequencing risk;
- RCLAs will match guaranteed income with the point of failure for the account based pension;
- DLAs will provide cost efficient protection against longevity risk (both idiosyncratic and systematic), investment risk and inflation risk late in life; and
- a DLA will define the minimum timeframe for which the account based pension component must provide income.

GSAs provide pooling of idiosyncratic longevity risk but not systematic (population wide or pool-wide) longevity risk. They may appear cheaper per dollar of expected income than guaranteed lifetime annuities but all systematic longevity risk, inflation risk and market risk are carried by the retiree and they provide no protection against sequencing risk. For these reasons, there is a good argument that where GSAs are used in a CIPR there should also be a component of guaranteed income.

VAs (variable annuities) are a much less suitable default product because they are too complex, too expensive and don't guarantee enough income – typically only 5% of the nominal value of the starting balance, which after two or three decades is not going to amount to much.

#### **2.4.2 Administration of CIPRs**

CIPRs are not a default product because they will only be triggered by an individual actively taking a decision to commence the pre-selected income stream upon their retirement. Fund members will still have choice including the ability to take a lump sum.

In some countries, governments are prescriptive about the range of income stream types and combinations from which a retiree may choose, for example:

- an immediate lifetime annuity;
- an ABP and an immediate lifetime annuity; or
- an ABP and a DLA.

In Australia's superannuation system the expectation is that the design of the CIPR would be a matter for the superannuation fund trustees. However as the policy intention is to ensure that the principal retirement income risks are properly managed it would be desirable to legislate to require trustees to specifically consider longevity risk, market risk and inflation risk when designing a CIPR.

Page 127 of the Final Report of the FSI says; *“Government should establish a mechanism to ensure each CIPR provides the required features, which should be specified in regulation. Ongoing regulatory oversight will also be required. Meeting regulatory requirements should provide trustees with some protection against breaching their fiduciary obligations.”* This submission proposes a methodology to specifically address this.

### **2.4.3 APRA should provide prudential standards for CIPRs**

One way to implement the CIPR concept would be for Parliament to legislate some high level objectives of the regime and the obligations imposed on trustees, leaving the detail and administration of the regime to APRA in its role as the prudential regulator. APRA could develop a prudential standard that provided guidance and direction to trustees in designing and implementing a CIPR. This approach could be similar to that adopted in respect of the provision of insurance within superannuation. APRA’s recently issued prudential standard on risk management for regulated institutions is a rich source of ideas for helping super funds develop an appropriate strategy for managing the risks faced by their retired members in a CIPR.

Challenger and Mercer are making a separate joint submission on this proposal.

### **2.4.4 Flexibility of CIPRs**

Achieving the primary objective of the superannuation system requires changing the current focus from accumulation to the delivery of retirement incomes. To do this there will need to be a level of engagement by public offer superannuation funds with their members on their financial needs in retirement.

The FSI Final Report notes that; *“Their design could vary with the member’s known characteristics, such as the size of their superannuation benefits, and take account of the possibility of cognitive impairment at older ages.”*

It may be desirable for public offer superannuation funds to develop a number of CIPRs to be pre-selected for different cohorts of their membership, rather than providing a single solution covering the whole of their membership. For example it may be appropriate to pre-select different CIPRs depending on the size of the member’s superannuation assets, to allow for the interaction between income, assets and the Age Pension, which would have implications for asset allocations.

While this will not facilitate simple performance comparisons between superannuation funds as is possible with default MySuper accumulation products, it needs to be recognised that retirement is very different to accumulation and retirement solutions need to meet the individual’s needs as far as they are reasonably identifiable and foreseeable, and can be catered for with a practical, efficient and deliverable product.

There will be significant differences between the membership profiles of individual public offer superannuation funds in terms of occupations and other socio-demographic characteristics. These factors may have major implications for expected longevity of the membership. Superannuation funds whose memberships are likely to have higher mortality should have the opportunity to negotiate group immediate lifetime annuities and DLA arrangements that reflect the higher mortality of the pool. If those funds’ members were required to accept longevity insurance rates which reflected a larger pool of lives with lower average mortality they would be disadvantaged by not having access to a fair rate. Therefore there should be no community rating as there is with private health insurance because that would disadvantage lower socio-demographic groups.

With appropriate engagement a preselected CIPR could also deal with non-financial issues, most commonly arranging for the lifetime annuity component to be for joint lives to cover a spouse, paying down an outstanding mortgage debt, or for more complex health issues such as arranging underwriting for an impaired lifetime annuity for a member with chronic illness who would be denied a fair rate if the lifetime annuity component were provided at a group rate. Annuities also provide reliable income late in retirement when capacity to make financial decisions is diminishing and dementia may also be a factor.

### **2.4.5 Cooling off period**

At page 128 the Final Report of the FSI says; *“Cooling off periods coupled with the provision of a (diminishing) return of capital in the event of early death may be appropriate for some pooled products.”*

A CIPR requires a cooling off period to give retirees a period to reverse their decision if they acted without fully understanding the nature of the product and subsequently discover it is not right for them. This is already the case for pension products with the current law prescribing a cooling off period, or “free look” of two weeks, in which a decision to purchase can be revoked without cost to the consumer. This is established commercial practice and should apply in the case of a CIPR.

A cooling off period currently implies reversal of the transaction at no cost. Cooling off periods at no cost to the retiree need to be restricted in length because they effectively grant an option which the purchaser can exercise at significant cost to the provider. The cost of that option has to be priced into the product and is therefore borne by other users of the product who do not exercise the option. Industry experience indicates that a significant proportion of those who would exercise the option would do so not because they didn't understand the product but because they were financially savvy and understood the value of the option.

An efficient approach to revoking an election to take a CIPR, which will assist rather than detract from retirees' decisions to take an income stream, should have two tiers:

- The current two week “free look” period with the purchase price to be returned in full if the retiree changes their mind; and
- A longer period specified by the product provider where the reasonable costs of relinquishing the CIPR are carried by the retiree.

The second tier needs to be matched to social security, tax and SIS pension rules. The Earnings Tax and SIS pension rules are currently being dealt with in Treasury's Review of retirement income stream regulation.

### **2.4.6 Suitability of CIPRs for low starting balances**

Due to the immaturity of the superannuation system average balances on retirement are low. A large proportion of these small balances are taken as lump sums and are therefore removed from the superannuation system, and after paying off debts the remainder is typically placed in a term deposit. The Final Report of the FSI suggests that term deposits represent a good outcome and that the default position for low balances could be a lump sum.

Both term deposits and account based pensions are now deemed, for the purposes of the Age Pension means test so from a social security perspective there is no advantage in taking one product and not the other. Similarly, if a retiree's income is below the limit for the Senior Australian and Pensioner Tax Offset they will not be disadvantaged from an income tax perspective if they invest in a term deposit rather than an ABP. The only advantage of a term deposit over an account based pension is that the term deposit has no minimum drawdown requirement.

However, term deposits lack a number of attributes which a CIPR that includes an account based pension and lifetime annuity should provide:

- Guidance as to a safe rate of withdrawal with a high probability of the income stream lasting for the retiree's lifetime. A term deposit controls ongoing payments but only according to the rate paid with no link to expected longevity.
- A smooth income stream without the interest rate risk associated with term deposit rollovers.
- Longevity protection which would ensure that no matter how long the retiree lives their superannuation savings will not exhaust and they will not be totally dependent on the Age Pension.
- Access to mortality credits.
- Exposure to growth.
- Inflation protection if part of the CIPR is indexed.
- Access to capital without penalty for unforeseen contingencies.
- Annuity income late in life which requires no investment decisions when cognitive decline or dementia are likely to be factors.

There is a well-founded alternate view amongst some superannuation funds that have been considering the issue how best to meet the needs of members with small balances that they would be better served by paying off their debts, keeping a small amount for contingencies and converting the rest into an indexed lifetime income stream.

Assuming \$50,000 at 3.0% per annum in the current environment, this small balance produces \$1,500 per annum or \$125 per calendar month. That will supplement the Age Pension by about 7.5%. Assuming the Age Pension will cover basic living expenses the supplement could make a significant difference to a retiree's quality of life by providing the capacity for coffees, beverages and meals with friends and such things as sporting or social club memberships, helping to ensure that these retirees do not suffer social exclusion because of lack of income above the Age Pension.

#### **2.4.7 Multiple premium longevity insurance**

Australia's current annuity market is comprised of fixed term and lifetime products that are purchased with a single premium. The introduction of DLAs into the Australian market will present an opportunity to introduce multi-premium products. Some industry funds have identified a need for products purchased by this means and this is reflected in Treasury's consultation paper for its Review of retirement income stream regulation. Interest from a number of superannuation funds indicates that multi-premium longevity insurance will be an important feature of many CIPRs.

Many superannuation funds provide group risk insurance to their members through their superannuation fund. However as the member nears retirement they may have paid down their mortgage and therefore have less need for insurance, the cost of which is likely to be rising at the expense of growing their superannuation savings. In these circumstances a shift from death and disability insurance to multi premium longevity insurance would better meet an ageing worker's needs. Purchasing longevity insurance over a long period allows averaging in of premiums as conditions in capital markets change, rather than the superannuation fund member being exposed to the risk of adverse capital market conditions at the time they retire.

#### **2.5 AGA paper "Towards More Efficient Retirement Income Products"**

The Financial System Inquiry commissioned a paper from the AGA (Australian Government Actuary) entitled, "*Towards More Efficient Retirement Income Products*", the purpose of which was to look at the efficiency of retirement income products that can be purchased by retiring Australians with their accumulated superannuation money.

The paper used a stochastic model to project future income streams which could be derived from an account based pension and a form of group self-annuitisation (mortality pooling). The stochastic modelling took account of:

- Volatility of investment returns; and
- Volatility of numbers of deaths in a population, assuming that the base mortality rates are correct.

The resulting income streams were also compared to a payment on a lifetime annuity, the amount of which was supplied by the FSI secretariat.

While the AGA's paper provided some valuable information, there were a few points which could lead to incorrect conclusions being drawn, including:

- The projection of mortality underlying the GSA outcomes only allowed for idiosyncratic mortality risk (that is, the risk of which particular individuals will die, assuming that the underlying mortality probabilities are correct). It therefore did not allow for systematic longevity risk, which is the risk that the mortality rates of the population as a whole may be different from those assumed. As a result, the variability of outcomes from the GSA is understated;
- This is particularly important when comparing against the outcomes of lifetime annuities, which protect against both idiosyncratic and systematic longevity risk. By ignoring a risk that is eliminated under one product, but retained under the other, an invalid comparison is obtained.
- The lifetime annuity payment amount was provided to the AGA by the FSI based on pricing requested from Challenger, rather than being derived on a consistent basis with the remainder of the report. This payment amount was calculated on a far more conservative mortality basis than the account based pension and GSA outcomes, leading to an invalid comparison.
- An underlying assumption of the investment return model is that returns will mean-revert. At the point that the projection commenced, the then-current returns were significantly different from the assumed long term averages, leading to distortions in the projections.

We have reproduced the calculations from the AGA's paper, addressing these points. The results are set out in the paper attached as Appendix C.

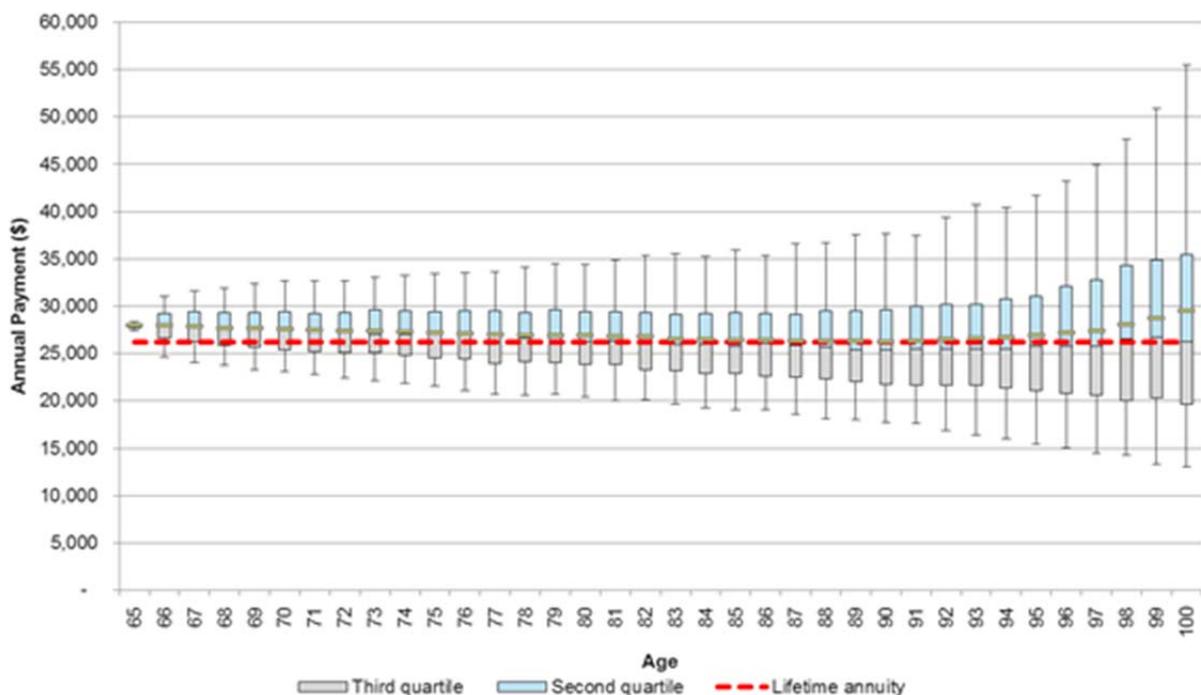
The paper concludes that:

- While the AGA paper's conclusion that *"the income from a lifetime annuity is very likely to be less, on average, than the income from a GSA"* is correct, the difference between the lifetime annuity and GSA is substantially less than shown in the AGA paper analysis.
- This difference, which is driven by the cost that a life company must bear in providing the capital to support all of the risks that it has taken on from an annuitant, is around 3% of payment amount (\$26,179 compared with \$26,913), rather than 15% of payment as determined in the AGA paper.
- The range of outcomes from the GSA is wide, with a large proportion showing payment outcomes lower than the lifetime annuity.
- In particular, the range of outcomes from these results shows very wide dispersion in later years. The results are more widely dispersed than the AGA paper results because the AGA paper ignores systematic mortality risk.
- In contrast, the lifetime annuity provides a guaranteed payment amount which does not change (in real terms) over the entire period.
- Overall, this illustrates that a GSA results in the investor retaining significant risk (systematic longevity risks, market risk and inflation risk) leading to uncertain and volatile future incomes that will be unsuitable for many retirees.

The chart below shows:

- At each age, the range of outcomes for the GSA. The line at the centre of the boxes shows the median outcome, while the boxes show the 25th and 75th percentiles of outcomes. The lines extending from the boxes show the 5th and 95th percentiles of outcomes. The darker line in the boxes shows the mean outcome.
- The payment amount for a lifetime annuity is now on a comparable basis: that is, using the same mortality and investment return environment as the GSA projection.
- All payments amounts are shown in real terms.
- The payments arising from the GSA under these results are generally higher than in the AGA paper. The reason for this is that the mean reversion within the AGA paper investment model leads to early losses.

**Figure 1: GSA outcomes vs Lifetime Annuity**



Source: Challenger Limited

## 2.6 Means test settings

*"It is important tax and Age Pension settings do not discourage people from using CIPRs."* FSI Final Report page 126.

*"Government would need to consider how the Age Pension means test applies to new income stream products. In principle, the means test should not discourage products that manage longevity risk, should aim to provide neutral treatment of products with longevity risk protection, and should not make it difficult for individuals to smooth their income and consumption over retirement. Without some amendments to the Age Pension means test, some CIPRs could increase the cost of the Age Pension to taxpayers."* FSI Final Report page 127.

*"Under the principles of the current means test, products with longevity risk pooling tend to increase Age Pension costs in the early years of retirement (due to faster depletion of assets when the means test is binding) and reduce costs in later years (because of higher income when the income test is binding)."* FSI Final Report page 127.

The FSI has not made specific proposals in relation to means testing. It is worth noting that under current rules a combination of an ABP and immediate lifetime annuity in a CIPR will balance and smooth the effect of the means test over retirement. It is also worth noting that a DLA will provide a step down in Age Pension costs towards the end of retirement when an ABP would be likely to be depleting resulting in a full Age Pension entitlement.

The government will need to determine the specific means test treatment for new retirement products, in particular DLAs and GSAs, which at the moment have no legislated means test treatment. Social security treatment is a critical factor for part pensioners when choosing retirement products.

Pooled longevity products are currently sold with death benefit and commutation features designed to address retirees' behavioural biases. These features are an important consideration in ensuring that means test settings do not discourage people from using CIPRs.

## **2.7 Impediments to product development should be removed.**

The FSI Final Report says at page 125, *"The Inquiry supports the review of retirement income stream regulation being undertaken by Government, which is examining ways to reduce or remove barriers to developing a market for DLAs."*

Challenger has made a comprehensive set of submissions to Treasury's Review of retirement income stream regulation as well as to the Financial System Inquiry on removing the impediments to DLAs. Efficient longevity products require pooling of capital. They provide more income if they have no liquidity features but providers must overcome retirees' behavioural biases including aversion to irreversible decisions. DLAs, as pure longevity insurance, can achieve high returns for a relatively small investment given a long deferral period with non-commutability. DLAs are an efficient means of providing longevity insurance and will be an important component of many CIPR offerings.

## 3. Innovation

### Recommendation 19: Data access and use

Review the costs and benefits of increased access to and improving the use of data, taking into account community concerns about appropriate privacy protections.

### 3.1 Enhanced provision of government data sets for research

Superannuation funds have a significant amount of data relating to their own members' accounts but are not likely to be aware of their members' accounts with other superannuation funds unless the member asks for them to be consolidated. Funds will not be aware of their members' non-superannuation income or assets. This limits the ability of funds and service providers to use the data they have to gain insights into the behaviour and needs of their memberships. Access to wider data sets would assist funds to come to a more complete understanding of their markets, including the likely characteristics of their members. Access to such data would assist them to improve their products and distribution systems to meet their members' needs and enhance competition in the industry.

Academics conducting investigations in the field of superannuation have very limited access to appropriate data sets for empirical research. They have access to a range of published and unpublished ABS data, and published APRA, DHS and ATO statistics. However the nature of those statistics and the way they are compiled limit the research questions they can be used to address.

Policy makers have better access to data in the form of the large amounts of information maintained by departments to administer the tax, social security, aged care and health systems. Because of its size and the complexity of the systems which manage it, access to this data has a high public cost which limits its direct availability even for evidenced based policy making by government.

Industry associations in financial services have only developed very limited capability to fill any of these gaps with their own statistical collections. This is not the case in some other jurisdictions like the United States, where industry associations collect and distribute vast amounts of data. An exception is Sirca Technology which has developed a very large data set of Australian share market transactions.

Over the last 12 months the Monash CSIRO Superannuation Research Alliance and CIFR (Centre for International Financial Regulation) have made progress in getting access to ATO data, in a form which protects the confidentiality of individual taxpayers. This is being used for superannuation research projects. This is critical to informing debate on future superannuation policy and also in providing insights which will help superannuation providers better meet their members' needs. As this data has to be in a form which protects the confidentiality of individual taxpayers before the ATO can release it, expanded provision should not await the recommended Productivity Commission examination of data provision.

## 4. Consumer outcomes

### Recommendation 23: Facilitate innovative disclosure

Remove regulatory impediments to innovative product disclosure and communication with consumers, and improve the way risk and fees are communicated to consumers.

#### 4.1 Visual representations of risk

ASIC faces significant challenges in ensuring that financial risks are properly disclosed to consumers and many consumers face significant challenges understanding those risks even when they are properly disclosed. Australia has tested the benefits of providing transparency to consumers with lengthy written product disclosure statements and these have been found to be much less effective than was assumed when they were first made mandatory. This continues to be the case despite significant efforts having been made to shorten and simplify them.

Many product providers and advisers have recognised the value of a range of calculators and online tools that have greatly assisted their clients to better understand their own financial situations and the practicalities of the financial products that are available to them. ASIC has developed regulatory guidance with a view to ensure that such calculators and tools do not lead consumers to erroneous conclusions about the benefits of particular products. ASIC has been particularly concerned to stop product providers using these devices to sell their own products by making selectively constructed comparisons with the performance of the products of their competitors. This has proved a particularly difficult area to properly regulate.

However, accurate information can be conveyed in many ways and interactive tools and calculators can graphically present fair comparisons between product types and show how each would perform when subjected to identical market conditions. Stochastic modelling allows comparisons to be made using a very large number of possible economic paths and to assign probabilities to possible outcomes. Those outcomes and probabilities can be represented graphically and shown dynamically to give clients a better appreciation of the risks they may face over time than would any single statistical measure.

Challenger has built a particularly useful retirement calculator that is capable not only of dealing with risk on a stochastic basis but it also has full social security functionality and can demonstrate the interactions of more than one product with the age pension means test. This calculator can demonstrate the effect of sequencing risk by reversing the order of a random set of economic outcomes and can assign probabilities showing the likelihood that an income stream will last to a certain age in retirement. The calculator also displays age cohort life expectancies for all relevant ages to provide a measure of longevity risk for non-guaranteed income streams.

What are the difficulties in regulating the use of such devices? First of all the assumptions need to be reasonable and based on some empirical analysis. Risks need to be expressed as a range around a central measure. Any returns assumed need to accord with a reasonable level of risk to be taken by a consumer. It may be appropriate for the returns used to be regulated to avoid product providers or advisers using excessively high returns to hold out the prospect of an unrealistically high retirement income.

**Recommendation 25: Raise the competency of advisers (page 222)**

Raise the competency of financial advice providers and introduce an enhanced register of advisers

## **4.2 UNSW course in Retirement Planning**

Challenger recognised the absence of adequate courses for financial planners to educate them to provide advice on the management of post-retirement risks and in 2013 entered a partnership with the UNSW Business School to develop suitable curriculum with UNSW having full academic control over the curriculum and teaching. In 2014 UNSW Business School introduced the course ACTL5401 Retirement Planning. This is an elective course, delivered in face-to-face mode in the Certificate, Diploma and Master of Financial Planning programs and may be taken as an elective in postgraduate coursework degrees offered by UNSW Business School. It is designed to supplement the existing suite of courses required under RG146 by providing specific training in retirement planning, and specifically retirement risk management.

The course may also be taken on a 'non award' basis, and as such is specifically targeted to existing financial planners. From June 2015 this course will be accompanied by a fully online version (called ACTL5402 Retirement Planning Online), which covers exactly the same material in online mode, using Smart Sparrow's Adaptive eLearning Platform. The online version may also be taken by both award and non-award students. Enrolment in the online version will not be restricted by the standard university calendar. Students will be able to enrol at any time, and will be given the equivalent of a standard teaching semester (13 weeks) to complete the course. Its online delivery mode will greatly increase the accessibility of the course.

Prof Hazel Bateman has provided an update on the provision of this retirement planning course which is provided at Appendix D.

Given that this course is widely available, and others such as ASFA (Association of Superannuation Funds of Australia) are now following with courses with similar content, there is no barrier to setting appropriate competency standards for financial planners in the area of retirement planning when ASIC (Australian Securities and Investment Commission) revises RG146.

## 5. Regulatory system

### Recommendation 30: Strengthen the focus on competition in the financial system

Review the state of competition in the sector every three years, improve reporting of how regulators balance competition against their core objectives, identify barriers to cross-border provision of financial services and include consideration of competition in the Australian Securities and Investment Commission's mandate

#### 5.1 Including consideration of competition in ASIC's mandate

Challenger supports the inclusion of competition in ASIC's mandate. APRA already has such a mandate included in its legislation. Any regulator responsible for consumer protection across a large industry sector with many segments and products cannot avoid influencing the competitive dynamics between industry participants if the effect of regulation falls more or less heavily on one sector or set of products than another. Regulatory requirements may differ between products or sectors depending on factors such as complexity and risk or the sophistication of investors but the regulator needs to be conscious of the potential of its regulatory approach to affect competition and the need to minimise such effects.

In some areas ASIC could adopt a pro-competitive approach, for example by reviewing its regulatory guidance on product comparisons to ensure that consumers have more information about the products that are available for them to choose between and that they are better able to determine not just what is appropriate but what is best for them.

ASIC's mandate should include both a requirement to consider how its regulations and processes affect competition and how its regulatory processes, including disclosure requirements can enhance competition.

#### 5.2 Regulators should report on their actions in relation to competition

Challenger supports financial services regulators being required to include in their annual reports their approach to dealing with competition issues, the actions they have taken to enhance competition, and how they have balanced maintaining an innovative and competitive market with the other aspects of their regulatory mandate.

An issue of particular interest on an ongoing basis should be capital standards for prudentially regulated entities of different types selling like products, eg. fixed term annuities and term deposits.

ASIC's MoneySmart website is justifiably a preferred and trusted source of reliable information on personal finances for consumers. ASIC should ensure descriptions of generic products, product features and commentary on the MoneySmart website are up-to-date, accurate and properly balanced, noting that not all product types are equal in the way they manage different risks or provide liquidity.

#### 5.3 Periodic regulatory reviews

Challenger agrees that the Government should commission periodic reviews into the competitiveness of the financial system. These should be conducted by the ACCC (Australian Competition and Consumer Commission). The first of these should not be delayed for a period years after the FSI process is completed because they will assist the regulators in the exercise of their competition mandate.

## 6. Significant matters (FSI Appendix 1)

### Recommendation 33: Retail corporate bond market

Reduce disclosure requirements for large listed corporates issuing 'simple' bonds and encourage industry to develop standard terms for 'simple' bonds.

### 6.1 Post-retirement products will drive the domestic corporate bond market

The need for suitable products to provide retirement incomes will drive demand for domestic corporate bonds. This demand will come from life companies backing annuities and superannuation funds adjusting their asset allocations to meet the income needs of ageing members. This institutional activity will aid price discovery for an emerging retail corporate bond market.

### Recommendation 35: Finance companies

Clearly differentiate the investment products that finance companies and similar entities offer retail consumers from authorised deposit-taking institution deposits.

### 6.2 Differentiation of products

The FSI considered whether to ban finance companies from accepting retail funds from consumers but, recognising that well-run finance companies have a useful role in the market, decided the best approach would be to differentiate the products of finance companies from accounts offered by ADIs. The Inquiry therefore recommended APRA ban finance companies from offering at-call products to retail consumers and from using bank account-like terminology. This is an important lesson from the GFC where at call accounts, mortgage funds and cash management trusts were put under significant pressure because of contagion from an international liquidity crisis which at that time also affected banks.

This principle should be extended more generally. Products should not be given names that imply they are inside the perimeter of prudential regulation of guarantees or insurance when this is not so. Similarly there needs to be more control over names that imply products will receive tax or social security treatment for which they are not eligible.

It would be beneficial for consumers if regulators required product providers to use a standard set of product definitions which are matched to critical product features without ambiguity:

- Guaranteed annuities or longevity insurance issued by a life company – fixed, deferred and immediate lifetime annuities where APRA regulates performance in terms of the policy promise and the risk is carried by life company shareholders.
- Non-guaranteed pooled longevity products, where the outcome will depend on actual market and mortality experience and all risk is carried collectively by members of the fund.
- Wraps and structured products that are used to hedge various market risks for a fee but performance is not regulated by APRA.
- Account based pensions where all risk is carried by the fund member.

It is critical that this issue be addressed at this time because a range of new products are expected to enter the market in the next few years and there needs to be transparency about who is carrying the risk in each case. Where products combine a number of components, regulators will need to ensure complete transparency about which risks are being carried by whom.

### **Recommendation 37: Superannuation member engagement**

Publish retirement income projections on member statements from defined contribution superannuation schemes using Australian Securities and Investments Commission (ASIC) regulatory guidance. Facilitate access to consolidated superannuation information from the Australian Taxation Office to use with ASIC's and superannuation funds' retirement income projection calculators.

## **6.3 Projections based on the need for sustainable income streams**

### **6.3.1 Support for retirement income projections**

Challenger agrees with the rationale and intent of Recommendation 37, and supports the inclusion of retirement income projections in super funds' members' statements.

The compulsory super system was devised in order to produce retirement income which can supplement and/or replace reliance on the Age Pension.

Communication to members of the likely income stream to be produced in retirement can be expected to increase member engagement and education, and is likely to precipitate larger contributions and therefore improve retirement income adequacy.

These projections should be available on member statements and on demand online, by phone and face to face.

In the interest of producing the most accurate picture possible, projections from multiple funds should be facilitated by the ATO giving access to additional data, as suggested in Recommendation 37.

Challenger is of the view that the projection of retirement income should not be optional but rather, mandatory to ensure all members receive the benefit of this important measure.

### **6.3.2 Regulation of retirement income projections**

The appropriate regulator for the provision of retirement projections is APRA, due to its existing regulatory oversight of super funds through administration of the Superannuation Industry (Supervision) Act. APRA is also more suited to this task than ASIC because it has an actuarial capability for dealing with longevity and mortality risk and investment methodologies.

While ASIC's RG229 can provide guidance and a starting point on an appropriate regulatory framework, a new approach is required for providing the member with the most accurate estimates possible rather than limiting the potential for super funds' mis-use of the projection as an upselling or churning sales tool, which is the current rationale for its inflexibility.

### **6.3.3 Full stochastic modelling**

While Challenger supports the projection of retirement incomes, it strongly cautions against adopting the same methods and approaches common to accumulation investing to the retirement phase of superannuation because investing in retirement is different in material respects:

- Investment contributions cease.
- The ability to derive non-investment income from personal exertion is impaired.
- The investment horizon is unknown.
- Investment focus changes from wealth accumulation to reliable income generation.
- Capital is being converted to income.
- Consequences of investment risks (inflation, liquidity, extrapolation, idiosyncratic and systematic longevity, sequencing, reinvestment, and sovereign risks) are more profound.
- Age pension entitlements and eligibility become relevant.

Most retirement and superannuation calculators and tools fail to acknowledge many of these differences, particularly the potential impact of market sequencing risk and longevity risk, and cannot incorporate age pension considerations. They are also vulnerable to overly pessimistic longevity expectations and overly optimistic investment return assumptions such as the unjustified extrapolation of historical equity risk premia.

For these reasons most retirement projections, estimations and calculators are more likely to mislead and confuse retirees rather than educate or properly engage them.

Moreover, consumers' well-known anchoring bias and use of heuristics in financial decision-making makes it a mistake to presume that a miscalculated view of income is superior to an unquantified income.

Ideally retirement income projections should be:

- mandatory for all defined contribution super funds;
- published only as the output of an estimation methodology prescribed by regulation;
- use stochastic modelling to ensure longevity risks, inflation, and investment (especially sequencing) risks are adequately dealt with;
- use both fixed and expected return assumptions based on empirical data capable of being peer reviewed
- incorporate likely age pension payments; and
- allow further refinement and tailoring of projections through complementary calculators and tools.

An example of a sophisticated calculator is the Accurium SMSF Retirement Health Check calculator. Accurium is a Tasmanian based actuarial services firm that was acquired by Challenger in 2014. While directed at professional use in an advised context, the tool nevertheless demonstrates that the technology exists today to provide more accurate retirement income forecasts than are commonly available.

### **6.3.4 An alternative “simpler” model**

An alternative approach is a much simpler one. While not as useful or sophisticated as a full stochastic model, this simple approach at least would not be open to manipulation and would provide a consistent basis for comparisons on income to be made across super funds.

This approach would require superannuation funds to provide members with estimates of the income stream their current balances could provide if they were retiring now at particular ages above preservation age. The income stream estimate would be a conservative one based on the current real rate of return and would be set having regard to ABS Life Tables adjusted for expected mortality improvements to provide a high degree of probability that the income stream could be maintained for the member's lifetime.

This projection would be a standard formula for the entire industry. The objective would be to:

- focus fund members on income streams as an outcome, rather than account balances; and
- provide guidance to retirees about the sustainable rate at which they could drawdown their current retirement savings.

By relating retirement income to their current balances superannuation fund members should be able to make a prudent estimate on their own of achieving their retirement income objective given their planned age of retirement.

This approach avoids the significant variability in providing very long term forecasts and it avoids funds gaming the income projection requirement for commercial reasons by providing estimates based on overly optimistic growth rates or claims about their own products.

The projections should be set to provide an indication of what they can draw if they wish to maintain a stable income stream throughout their lifetime, recognising that the income they can draw will depend on economic circumstances, in particular real rates of return available in the market.

The projection could be presented together with an explanation that retirement income would grow with:

- additional compulsory SG contributions made during the years to retirement;
- any voluntary contributions made up to the concessional and non-concessional caps;
- earnings on superannuation savings prior to retirement; and
- extra years worked after preservation age.

The income stream from an account could be projected on the basis of:

- Investment earnings on the account balance / purchase price being set equal to a risk-free real rate of return such as the return on long-term inflation-linked Commonwealth Government Bonds;
- A prescribed mortality table, which takes appropriate consideration of future mortality improvements and includes a degree of conservatism to increase the probability of payments lasting throughout life, and is subject to a minimum expected future payment period, say 10 years.

APRA would determine, publish and annually review the parameters which would be used by super funds to make their projections for fund members. An example table of parameters, based on current market conditions and relevant assumptions is at Table 2 on page 25 of this submission.

It should be mandatory for superannuation funds to present them in current dollars representing the income that could be drawn from each member's account balance if they commenced an income stream at each age.

### **Example: Member with a current account balance of \$250,000**

The XYZ superannuation fund provides the member with an annual statement showing her accumulated balance as at 30 June 2015 is \$250,000.

The member's annual statement then says:

"You should not think of your account balance as a lump sum payment, you should think of it in terms of the annual income you could reliably draw from it each year over the course of your retirement.

All superannuation funds are required to provide indicative projections on the same basis. These projections do not reflect the performance of the assets in your accumulation fund or the pension fund you may ultimately choose. They are set according to a prescribed formula to give you an indication of an income stream you could reasonably expect. The actual income stream you receive will depend on the pension fund you choose and may be affected by changes in market performance.

The income projection provided here cannot be used to compare performance with other funds.

The income projection is to give you a guide to the income you would be able to take if you were retiring today at various ages (say 60, 65 and 70 years). The income you can take will be affected by prevailing real rates of return when you retire. This is presented as a range. In the income projections below, the Expected income projection is based on a real inflation adjusted return of 1% p.a., while the lower and upper bounds are based on 0% p.a. and 2% p.a. real returns respectively.

If you continue to work your employer will continue to make SG contributions. There will also be earnings on your current balance and these additional contributions. Together these will increase your superannuation balance and the size of the income you can draw from it when you retire.

If you wish to have a higher income in retirement you can also make voluntary contributions, either or both up to the concessional and non-concessional caps. If you are fit enough you could also choose to work a few years longer".

**Table 1: Income projections for a \$250,000 retirement balance**

Age	Lower bound	Expected	Higher bound
60	\$7,400pa	\$8,800pa	\$10,300pa
65	\$8,700pa	\$10,000pa	\$11,600pa
70	\$10,400pa	\$11,800pa	\$13,300pa

**Table 2: Retirement balances required to fund a sustainable retirement income, expressed as a multiple of the annual income amount**

Age	0% real	1% real	2% real	3% real	4% real	5% real
60	35	29	25	21	18	16
61	34	28	24	21	18	16
62	32	28	24	20	18	16
63	31	27	23	20	18	15
64	30	26	23	20	17	15
65	29	25	22	19	17	15
66	28	25	21	19	17	15
67	27	24	21	18	16	15
68	26	23	20	18	16	14
69	26	22	20	18	16	14
70	25	22	19	17	15	14
71	24	21	19	17	15	14
72	23	20	18	16	15	13
73	22	19	17	16	14	13
74	21	19	17	15	14	13
75	20	18	16	15	13	12
76	19	17	16	14	13	12
77	18	16	15	14	13	12
78	17	16	14	13	12	11
79	16	15	14	13	12	11
80	15	14	13	12	11	11

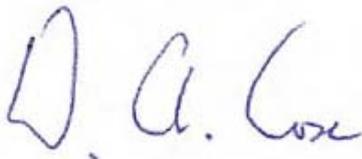
These income projections:

- Are conservative;
- Use female mortality for all people since male mortality would be too high for females. Alternatively separate income projections could be used for males.
- The base mortality table is the ALT table (at 2011), multiplied by 50% to allow for:
  - people who have been employed having lower mortality than those who haven't;
  - people from higher socio economic levels having lower mortality – to ensure that the minimums are relevant to people from medium to higher socio- economic levels; and
  - a level of conservatism to provide a better than 50% chance that the income will be stable for life, with a high probability that the funds will not run out.
- Mortality improvements are the 25 year average mortality improvements as published by the Australian Government Actuary.
- The income projection is based on  $1 / (\text{annuity value for life expectancy at the risk free rate})$ , where life expectancy has a minimum of 10 years. Note that the minimum of 10 is to avoid the minimum rising to very high levels at older ages. For the purposes of simplicity the factors are based on a fixed annuity to life expectancy, rather than a full survival curve.
- The income projections are expressed as dollars per annum of income, rounded down to the lower \$100.
- No adjustments have been made to allow for guaranteed life annuities to cover cost of capital.

## Conclusion

The FSI's recommendations propose major reforms to the superannuation system that are capable of simultaneously improving living standards in retirement; sustainability of retirement incomes; and fiscal sustainability of the retirement incomes system. These recommendations should be implemented as soon as possible. Challenger is available to provide any clarification in relation to this submission or other information that Treasury requires in preparing the Government's response to the Inquiry.

Yours sincerely

A handwritten signature in blue ink that reads "D. A. Cox". The signature is written in a cursive style with a large initial "D".

David Cox  
Head of Government Relations

**Appendix A: The Financial Claims Scheme, an Assessment of the Scheme's  
Broader Economic Impact, (August 2013)**

# The Financial Claims Scheme

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**An Assessment of the scheme's broader economic impact**

August 2013

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An independent report prepared for Challenger Limited by the Australian Centre for Financial Studies. The principal authors of this report are Professor Kevin Davis, Research Director, and Martin Jenkinson, Research Officer at the Australian Centre for Financial Studies.

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## Executive Summary

Government backed bank deposit insurance schemes have been globally accepted as a means for promoting financial stability and protecting deposits of households unable to assess bank default risk. Australia's deposit insurance scheme, the Financial Claims Scheme (FCS) which was introduced subsequent to the onset of the Global Financial Crisis, has been somewhat unique by international standards with a maximum insurable amount as large as any other offered without requiring an ex-ante fee for the protection - until the August 2013 announcement by the then Labor Government foreshadowed the introduction of an ex-ante fee. The FCS is also relatively unique in the priority afforded to APRA for recovery of amounts paid to insured depositors in the event of an ADI liquidation. This virtually eliminates the potential cost of the FCS to the taxpayer (although exposure to more general bail-outs remains) and removes much of the rationale for an ex-ante fee on "fair insurance" cost grounds. But such a fee may be motivated instead by the benefits which a guarantee of "rapid access" to funds which the FCS provides, together with the possible costs to APRA of facilitating an open resolution of a troubled ADI prior to failure (such as through a subsidised takeover).

The potential financial stability benefits provided by the FCS come at a cost. As well as the reduced level of market discipline of banks by retail depositors (from perceptions of safety), there is also an impact on demand for alternative investment products. While other factors have also played a role, the size of institutions like cash management trusts and finance companies which compete directly with banks for household funds have decreased significantly since the introduction of the FCS. During this time term-deposits held by households have increased considerably both on an absolute basis and relative to other forms of investments.

The scheme has also created competitive distortions between longer-term investments issued by institutions not covered by the FCS, and financially engineered products offered by ADIs which are economically equivalent and receive the government guarantee. For example, annuities offered by non-prudentially regulated organisations are at a clear disadvantage when the same investment can be created through a series of government guaranteed ADI term deposits. As demand for risk free income streams for retirement increases the potential size of the competitive distortions caused by the scheme grows.

The FCS also works against the development of a retail corporate bond market, since investors can, by diversifying across banks, invest large amounts in risk free term deposits. Regulatory changes and competition for funds has led to substantial increases in term deposit interest rates on offer, amplifying this effect. Competitive imbalances are also evident amongst retirement investment vehicles; while the large deposits of institutional superannuation funds (held indirectly on behalf of many individuals) are ineligible for the

guarantee, deposits held by a self-managed superannuation fund are covered by the scheme.

The potential distortions also affect lending markets. To the extent that the FCS means that ADIs are able to raise retail funding at lower rates than other intermediaries, they have a competitive advantage in competing for loan business and in investment markets. Unless regulators (APRA) or uninsured depositors and bond holders of the ADIs inhibit such actions, ADIs can engage in higher risk lending and investment activities – based on retail funding at “risk free” rates, whereas other intermediaries would find these higher risk activities reflected in their funding costs.

The competitive distortions caused by the FCS suggest that a case for an ex-ante fee for the guarantee can be made. However determining the appropriate size of the fee is problematic particularly given the likelihood that blanket guarantees provided during the GFC have entrenched a general belief that an implicit government guarantee extends beyond the FCS. A fee solely based on insured deposits would not offset this potential competitive advantage of (particularly large) ADIs.

There is also merit in reducing the maximum cap for insured deposits. Very few households have deposits above \$50,000, and the aggregate amount of insurance coverage can be increased by spreading deposits across ADIs. An alternative (but also using a lower cap), given the emphasis in the FCS on providing ready access to funds, would be limit coverage of the scheme to transactions (at-call) accounts of retail depositors. Providing the option of protection (for a fee up to some specified limit) for unsophisticated investors with temporary large balances or SME businesses with larger operating balances to meet payrolls etc., could be considered if that type of protection was seen as being within the scope of the scheme.

While a deposit insurance scheme such as the FCS can enhance financial stability and enhance transactional liquidity for households unable to assess bank default risk, the structure of the FCS requires a review to mitigate the competitive distortions created by the scheme in its current form.

## 1. Introduction

The Financial Claims Scheme (FCS) has been in operation in Australia since October 2008, with the current \$250,000 cap on deposit amounts guaranteed applying since February 2012. There has, to date, been no fee charged for provision of the guarantee, with an *ex post* funding model applying. Should an ADI fail and APRA be unable to recoup amounts paid out to insured depositors from remaining assets of the ADI, then the Treasurer may impose a levy on other ADIs to cover any shortfall. The FCS also provides for compensation of general insurance policy holders should a general insurer fail (See Appendix 1 for details). This has attracted less attention and appears to have less spillover effects to other parts of the financial sector, and is consequently not considered further in this report.

Absence of a fee for such deposit insurance, until the announcement of a planned fee of 5 - 10 basis points in early August 2013,<sup>1</sup> is relatively uncommon in an international context, and Appendix 2 provides recent information on fees charged for deposit insurance in other countries. The size of the cap is also relatively high by international standards, although many countries increased the level of coverage after the onset of the Global Financial Crisis (GFC). Appendix 3 provides comparative information.

In this report the extent of likely distortions to financial markets arising from the FCS, in terms of allocation of resources, competitiveness of non-bank providers of financial services, and financial product innovation is examined. In section 2 rationale for deposit insurance schemes (of which the FCS is the Australian example) is considered. In section 3, the history behind the introduction of the FCS in its current form is reviewed and reasons for its current design features are outlined. Section 4 then provides an analysis of the likely social and private benefits and costs which arise from the current FCS structure. The empirical relevance of these effects is considered in Section 5 which focuses upon household financial asset holdings and in Section 6 which examines the impact on competing financial products and institutions. Section 7 concludes by identifying potential changes to the design of the FCS which could be considered to reduce the financial sector distortions identified in the earlier sections.

In undertaking this analysis it is important to note that the FCS is only one factor creating distortions in financial markets, and also that empirical assessment of its effects is complicated by the disruptions to financial markets caused by the GFC and subsequent

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<sup>1</sup> "The Government will progress a recommendation from the Council of Financial Regulators, which includes the Reserve Bank of Australia and the Australian Prudential Regulation Authority, to establish a dedicated Financial Stability Fund to help meet any future cost of the Financial Claims Scheme (FCS), as well as the cost of other resolution activities that protect depositors. The dedicated Fund will build gradually over time to a target size of 0.5 per cent of total deposits protected by the FCS. Establishing the Fund is expected to have a net positive impact on the budget of \$733 million over the forward estimates, from 1 January 2016."  
[http://www.budget.gov.au/2013-14/content/economic\\_statement/download/2013\\_EconomicStatement.pdf](http://www.budget.gov.au/2013-14/content/economic_statement/download/2013_EconomicStatement.pdf)

regulatory changes. Financial decisions of the retail sector (to whom the FCS particularly applies) are also distorted by taxation arrangements which provide incentives for investments in owner-occupied and investment properties, equities, superannuation (where there is also a significant compulsory component), and the financing of investments by leverage. Financial sector adjustments since the introduction of the FCS have also been affected by changes in bank (and other financial) regulation together with a reassessment of the desired level and type of risk-taking by both financial institutions and investors.

## **2. Rationale for Deposit Insurance and the Financial Claims Scheme**

Deposit insurance involves (generally) government establishment and operation of a scheme which provides depositors in approved institutions with a guarantee of safety of funds invested up to some “capped” amount.<sup>2</sup> In some countries, guarantee schemes also operate to provide limited protection to investors in other financial products. In Australia, the FCS also provides for limited protection of policy holders with general insurance companies (but not life assurance companies).

Internationally, the provision of government guarantees over financial products other than deposits is infrequent. On the other hand deposit insurance has become common internationally, prompted in part by the views of international agencies about its importance as part of the core financial infrastructure for financial stability. Originally introduced in the USA on the 1<sup>st</sup> of January 1934<sup>3</sup>, but adopted by few other countries over the next forty years, it has since been adopted virtually universally.

The traditional rationale for government provided deposit insurance schemes is twofold. One is the perceived benefits in terms of financial system stability arising from the exposure of deposit taking institutions to runs by depositors and the potential for contagion (or spillovers) to other institutions. That exposure reflects the “first-come first-served” nature of the deposit contract such that “early withdrawers” obtain full value, but their actions can create a need for banks to liquidate assets at discounted prices threatening bank solvency and reducing the probability of “late withdrawers” receiving full value. Incentives exist for depositors to thus “join a run”, and potential spillovers arise from the inability of depositors to identify whether the cause of a run is specific to that institution or reflects more general issues also likely to affect other banks. The decline in the incidence of bank runs in countries such as the USA which had adopted deposit insurance no doubt contributed to its more widespread implementation in the latter part of the twentieth century.

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<sup>2</sup> Schemes are generally government run (or backed) because a private insurance scheme may itself be subject to risk of failure. Participation of designated types of depository institutions is also generally compulsory to avoid problems of adverse selection (participation only by institutions which turn out to be high risk) and free-riding (where poorly informed depositors incorrectly assume that all institutions are participants).

<sup>3</sup> <http://www.fdic.gov/about/learn/symbol/index.html>

The second rationale for such schemes is to provide uninformed retail investors with a “safe haven” for their savings. Deposit insurance removes the need for such investors to gather information about the risk of depositing with a particular bank, which they would be unable to adequately assess anyway. It also provides peace of mind about the safety of funds which have been deposited. The distinction between such retail depositors and more informed wholesale depositors, who should be better able to assess bank risk, is a major reason for placing a “cap” on the size of insurance of individual deposits. Depositors with large amounts of funds to place are assumed to provide “market discipline” over banks by demanding returns on their deposits commensurate with their assessment of the risk of the bank.

The rationale for government insurance of deposits rather than other forms of household savings (such as superannuation balances or life insurance company policies and annuities) reflects three factors. One is the historical context and the relative risk and disruption of bank failure compared to that of other institutions. A second factor is the role of (some) bank deposits in the payments system. A third is the complication that some, but not all, of those other savings forms involve exposure to market risk rather than having fixed contractual obligations of the product providers. As the demand by retirees for risk free income streams from investment of savings (outside of superannuation) grows, the anomaly of, and distortions arising from providing insurance over bank long-term term deposit-type products but not over other similar products provided by prudentially regulated non-banks becomes increasingly relevant. This is a clear example of where regulation on institutional classification basis rather than an economic function basis can induce competitive imbalances and market distortions.

A further consideration in the development of deposit insurance schemes has been the objective of providing depositors in a failing bank with *rapid access* to their funds. Because bank deposits also function as money, long delays in depositors being able to access their funds in a failed bank can, when they have few other liquid assets, have significant implications for individual consumption and welfare and for the viability of business customers with payment obligations to others. The consequent disruption to consumption and income streams can have deleterious consequences for economic activity and business continuity – even if the amounts owed are eventually paid in full. The importance of the Early Access Facility for Depositors (EAFD) was highlighted in the explanatory memorandum accompanying the introduction of the Financial Claims Scheme legislation on October 15, 2008.<sup>4</sup>

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<sup>4</sup>[http://parlinfo.aph.gov.au/parlInfo/download/legislation/ems/r3096\\_ems\\_7f78f6b6-bda4-4229-bd9f-7cd2bc99654a/upload\\_pdf/320519.pdf;fileType=application%2Fpdf#search=%22legislation/ems/r3096\\_ems\\_7f78f6b6-bda4-4229-bd9f-7cd2bc99654a%22](http://parlinfo.aph.gov.au/parlInfo/download/legislation/ems/r3096_ems_7f78f6b6-bda4-4229-bd9f-7cd2bc99654a/upload_pdf/320519.pdf;fileType=application%2Fpdf#search=%22legislation/ems/r3096_ems_7f78f6b6-bda4-4229-bd9f-7cd2bc99654a%22)

## 2.1 An Assessment

There are two problems with the traditional rationale for capped deposit insurance schemes. The first relates to their role in preventing bank runs. While retail depositors may still run on a bank where there are concerns about deposit safety, modern bank runs are likely to involve wholesale, relatively well informed, creditors and depositors refusing to roll-over short term funding or withdrawing deposits – generally via electronic transactions. Thus, while deposit insurance, capped at some level of deposits, is likely to reduce certain sources of bank runs (such as retail depositor uncertainty), it is not, of itself, a solution for preventing runs and achieving financial sector stability. Moreover, a relatively small cap covers most retail deposit amounts (as shown later) and thus removes incentives for virtually all retail depositors to run (unless concerns about disruptions caused by delayed access to funds are an issue).

The second problem is that the existence of an explicit cap may have little credibility if there is widespread belief that government will not countenance the failure of (at least some) banks. Investor decisions are then premised on the existence of implicit guarantees over all deposits in banks believed to be protected, removing or reducing the extent of market discipline – and providing a competitive advantage in fund raising to such institutions. Actions such as the temporary introduction of blanket government guarantees on all deposits during the GFC tend to reinforce such perceptions, reducing the credibility of government assertions that (uninsured) depositors are at risk in the future. This is particularly an issue in the case of large banks which are designated as systemically important either at the global level (G-SIBS) or the domestic level (D-SIBS).<sup>5</sup>

Designing policies to overcome distortions arising from perceived implicit guarantees is a difficult and ongoing policy task, including introduction of contingent liability and bail-in provisions for some forms of bank liabilities. However, the ability of governments to extend such loss-sharing arrangements to uninsured deposits as a means of returning institutions to solvency is politically limited – as experience in mid-2013 with such proposals in the case of Cyprus demonstrates.<sup>6</sup>

The possible existence of widespread perceptions of implicit levels of depositor protection extending beyond the boundaries of the explicit cap, make it difficult to analyze the implications, and desirable design changes, of the FCS in isolation. Thus, for example, investor portfolio readjustments during and after the GFC towards bank deposits may have reflected perceptions of implicit guarantees as much as the explicit protection provided by

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<sup>5</sup> G-SIB (D-SIB) stand for (respectively) Globally (Domestically) Systemically Important Bank.

<sup>6</sup> While large, uninsured, depositors in several Cypriot banks had part of deposits converted into equity, the fact that many such deposits were foreign-owned reduced the domestic political complications.

the FCS.<sup>7</sup> Nevertheless, in more normal times, the explicit cap does serve as a psychological signal which potentially influences retail investor portfolio decisions, and thus warrants explicit consideration. A further implication is that it may not be possible to consider government risk-bearing and appropriate pricing of fees of explicit guarantees separately from consideration of implicit guarantees.

More generally, however, the increased role of wholesale investors as potential sources of bank runs (particularly if it is believed that they do not perceive that implicit guarantees exist) means that it is more relevant to consider the design of deposit insurance schemes such as the FCS from the context of the “safe haven” role in conjunction with the objective of “rapid access” to funds, rather than in terms of prevention of bank runs and financial stability.

### **3. History and Design of the Financial Claims Scheme<sup>8</sup>**

Table 1 provides a timeline of important events in the lead-up to the introduction of the FCS in Australia. Australia (together with New Zealand) had been an outlier internationally in not having an explicit deposit insurance scheme (although relatively few countries had insurance policy holder protection schemes). The need for a deposit insurance scheme was considered by the Wallis Inquiry (1997) and rejected, based partly upon the existence of depositor preference arrangements in Australia. Because depositors have priority over other bank creditors in insolvency, the risk of there being a shortfall of assets sufficient to imply losses for bank depositors was seen as sufficiently low to obviate the need for a deposit insurance scheme.

The failure of HIH Insurance in 2000, the introduction of a compensation scheme for policy holders, and the recommendations of the subsequent Royal Commission, brought the issue of protection arrangements to a head. In particular, the credibility of Government statements that there were no implicit guarantees for depositors or policy holders was challenged. Concerns that an explicit scheme could create moral hazard concerns became of less import if there was widespread belief that implicit guarantees existed.

Following the Davis Report (2004), commissioned by the Treasurer to examine the case for, and potential design issues, of financial system guarantees, there was a long period of consultation and debate before legislation was eventually brought forward for planned introduction into Parliament in the week commencing 13 October 2008. That legislation with an insured deposit cap of \$20,000 (reduced from previously recommended \$50,000

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<sup>7</sup> The initial blanket guarantee effectively replaced any implicit guarantee with an explicit guarantee, and whether subsequent reductions in explicit coverage changed perceptions of implicit guarantee coverage is open to question.

<sup>8</sup> Turner (2011) provides an overview of the history of the Financial Claims Scheme

after lobbying by the banks) was overtaken by events following the failure of Lehman Brothers, widespread international introduction of bank guarantees, and concerns about depositor nervousness and financial system stability.

On 12 October 2008, the FCS was legislated, an unlimited guarantee of bank deposits introduced, with the guaranteed amount subsequently capped at \$1 million on 28 October 2008.<sup>9</sup> In late 2011, after a review of the scheme which was foreshadowed at the time of the schemes introduction, it was announced that the cap would be reduced to \$250,000 per depositor in a failed bank, and this was implemented in February 2012, and remains the case today.

**Table 1 A timeline of introduction and changes to the Financial Claims Scheme**

<b>Date</b>	<b>Action</b>
<b>April 1997</b>	The Wallis Report investigates the implementation of a deposit insurance scheme but deems it unnecessary due to alternative deposit protection mechanisms in place. <i>- Financial System Inquiry, 1997</i>
<b>May 2001</b>	Government introduces the HIH Claims Support Scheme, a compensation scheme for policy holders of the failed HIH insurance company
<b>September 2002</b>	APRA provides a submission to the HIH Royal Commission including an argument for consideration of a broad financial sector deposit insurance scheme. <i>- Future policy directions for the regulation and prudential supervision of the general insurance industry, 2002</i>
<b>April 2003</b>	HIH Royal Commission recommends introduction of a policy holder protection scheme. <i>- Report of the HIH Royal Commission, 2003</i>
<b>March 2004</b>	The Davis Report assesses the case for government support for individuals affected by the failure of prudentially regulated institutions and the potential design characteristics of any such scheme. <i>- Study of Financial System Guarantees, 2004</i>
<b>November 2005</b>	Council of Financial Regulators recommendation for introduction of a Financial Claims Scheme Council of Financial Regulators – Failure and Crisis Management in the Australian Financial System, 2005
<b>June 2008</b>	Announcement of planned introduction of a Financial Claims Scheme capped between \$20,000 and \$50,000
<b>September 2008</b>	The failure of US investment bank Lehman Brothers (which filed for chapter 11 bankruptcy protection) severely disrupted global financial markets and governments and regulators worldwide responded by introducing government guarantees over bank debt, enhancing

<sup>9</sup> A guarantee could be purchased for deposits over \$1 million on similar terms to the guarantee facility available to banks for the issue of new debt securities in wholesale markets. At its peak, \$24.1 billion of large deposits was insured under this scheme, with maximum maturities permitted of 5 years for term deposits and to October 2015 for at call deposits. At June 2013, \$2.4 billion still remained under guarantee.

	depositor insurance, and introducing other support and protection mechanisms.
<b>October 2008</b>	The Australian Government introduced the Financial Claims Scheme in conjunction with a guarantee scheme for bank debt. The guarantee of deposits was initially unlimited but reduced to a cap of \$1,000,000 on 28 November 2008.
<b>7 February 2010</b>	Government announces Guarantee scheme for new debt issues and large deposits to be closed on 31 March 2010
<b>December 2010</b>	Government announces that the Financial Claims Scheme is to remain as a permanent feature of the financial system
<b>May 2011</b>	The Council of Financial Regulators (CFR) releases their recommendations for the Financial Claims Scheme following a review of the scheme. The most significant recommendation stemming from the review is a reduction in the cap to between \$100,000 and \$250,000
<b>September 2011</b>	Government announces a reduction in the Financial Claims Scheme cap to \$250,000 to apply from 1 February 2012.
<b>August 2013</b>	Government announces plans to introduce a levy of 5-10 basis points on insured deposits at ADIs to be paid into a Financial Stability Fund

While the level of the guarantee cap has changed over time, other features of the FCS have remained unchanged until the recent announcement of a planned introduction of a fee on banks of 5-10 basis points per dollar of insured deposits. Prior to that announcement, there had been no fees charged for the guarantee, with the scheme being described as “ex post” funded. This meant that if a bank failed and APRA (the operator of the scheme) was unable to recover funds paid out to insured depositors from the assets of the bank in liquidation, the Treasurer could impose a levy on other ADIs to recoup those amounts.

The logic behind the absence of a fee was primarily that, on actuarial grounds, there was virtually zero risk of APRA not recovering amounts paid out from the assets of the bank. This reflects (a) the probability of an ADI being placed into liquidation (b) the balance sheet structures of ADIs and (c) priority rankings of claimants in liquidation. If an ADI fails, APRA pays out insured depositors and then stands at the head of the priority queue of claimants on the failed ADI’s assets.<sup>10</sup> Because banks (but to lesser extent mutual ADIs) have significant uninsured deposit and other debt liabilities, the probability that the value of assets of the failed bank would have declined to such an extent as to not cover insured liabilities (and thus enable full reimbursement of APRA) is extremely low. Also, the likelihood of an ADI being placed into liquidation, and thus triggering a payout to insured depositors, is also perceived as low. High capital ratios (with higher values for mutuals partially offsetting their lower use of other debt and uninsured deposit funding), APRA supervision and early action to effect an open resolution of a failing ADI (by takeover), and

<sup>10</sup> This priority ranking was introduced in the Financial System Legislation Amendment (Financial Claims Scheme And Other Measures) Bill 2008. Previously, all depositors ranked equally with first priority.

(ADI management would argue) prudent management of ADIs, all combine to suggest a low probability of failure. With these ingredients suggesting a low probability of failure, and extremely low loss to APRA (and thus the government) in the event of failure, an actuarially fair fee for insurance provided by government approaches zero.

In fact the provider of the first line of insurance is other claimants and stakeholders on the bank (uninsured depositors, debt holders, shareholders) who rank below APRA (standing in place of insured depositors) in the event of a bank liquidation, and would suffer larger losses if that priority ranking were not in place. In principle, this implicit provision of insurance to insured depositors, should be reflected in demands for higher promised returns on uninsured deposits and debt issued by ADIs. However, to the extent that such stakeholders perceive that there are implicit government guarantees of ADIs which reduce the risk of liquidation and thus losses to zero, this mechanism will not operate, with ADIs thus benefitting from the perception of implicit guarantees. Arguably, this effect is more relevant for those ADIs which are designated D-SIBs.

These considerations thus suggest four possible intertwined arguments for charging a fee for the FCS protection of insured deposits. One relates to the potential benefits of “rapid access” which the FCS provides to insured depositors in a failed ADI. Even though, without the scheme, depositors would still most likely receive their funds back in full, the liquidation process could take some considerable time. The benefits from avoiding such disruption are substantial and could warrant imposition of an *ex ante* fee for providing this benefit.

However, the probability of such an event (a liquidation) happening are, arguably, miniscule – but this reflects two other features of depositor protection which can justify fees. One is the role played by APRA in ensuring the smooth exit of a troubled ADI via takeover and thus avoiding its liquidation. Benefits to insured depositors (and other creditors) from such a process can be argued to exceed those from the “rapid access” arrangements which would otherwise come into play if the ADI were placed into liquidation. Hence, fees could be justified on the basis of both benefits to depositors and competitive advantages to ADIs relative to other financial institutions subject to different resolution and liquidation arrangements. A third argument relates to the benefits in the form of reduced likelihood of retail depositor runs resulting from the existence of the FCS. If the psychological effect of the FCS is to largely remove the probability of runs, banks benefit from the reduced cost of risk management (such as the need to hold higher liquid asset reserves).

The fourth argument relates to the possible role of implicit guarantees. If widely perceived to exist, these give a competitive advantage to the ADIs involved, and a fee could be justified on competitive neutrality grounds. Even though uninsured depositors and debt

holders are effectively the insurer of first resort in event of failure, they may not demand higher returns on funds provided because of a view that implicit guarantees mean that they will not be called upon to incur losses. But demonstrating that there are such perceptions and that they reduce bank funding costs below what they would be on a “stand alone” basis reflecting their low-risk basis is problematic.

#### **4. Distortions arising from the FCS**

Explicit provision of free (or underpriced) insurance to a major class of assets (such as provided to retail deposits via the FCS) would be expected to create distortions to investor portfolio preferences unless either (a) the assets were inherently risk free even in the absence of the insurance or (b) there existed widespread belief in implicit government insurance arising from unwillingness to let the issuing institutions (ADIs) fail – itself a major encompassing source of distortion.

The distortion arises from the competitive advantage provided to ADIs in raising funds in the form of retail deposits relative to other institutions raising funds in different forms from the same investor group. The potential distortion is not limited simply to deposit-like investments. It can distort loan and securities markets because guaranteed institutions can raise funds for risky lending and investment at a lower cost than competitors. Also, because the FCS affects risk-expected return characteristics of deposits it thus can alter the competitive position relative to other risky assets. Appendix 4 illustrates using standard textbook type analysis of portfolio choice. More generally, the competitive distortion may affect the risk-taking behavior of other competing financial institutions. For example, such institutions may respond to the fact that their lending-borrowing spreads are reduced relative to ADIs (who can raise funds at a lower rate) by adopting higher leverage in search of a comparable return on equity to ADIs. Also important is the extent to which ADIs can design guaranteed financial products which are very close substitutes for those produced by other institutions not covered by the FCS.

One important determinant of the extent and nature of distortion will be how competitive conditions between ADIs affect the pricing of guaranteed deposits. In this regard, a major issue is the existence of a somewhat segmented market. Institutional (wholesale) investors face an inelastic supply of risk free investment opportunities – in the form of bonds issued by the sovereign government.<sup>11</sup> Retail investors face a highly elastic supply of risk free investment opportunities in the form of guaranteed bank deposits. While there is a cap on guaranteed amounts per depositor at any one bank of \$250,000, retail investors can place

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<sup>11</sup> Financial engineering can extend the available supply of close substitutes to some degree, such as by using cross-currency interest rate swaps to convert cash flows from a bond issued by an overseas government into known domestic currency amounts, or by purchase of credit default swaps from a high ranking counterparty to provide default protection on a high quality bond investment.

funds with over 100 ADIs, enabling coverage of over \$25 million per investor under the FCS. While there is some scope for retail investors to access government bonds and for wholesale investors to hold risk-free investments in a large number of small amounts across ADIs, there would appear to be relatively limited linkages between the two markets. That lack of linkage is reinforced by the impact of Basel III liquidity requirements which treat short term deposits from financial and wholesale investors as being less stable for meeting liquidity regulation requirements.<sup>12</sup>

There are three potential outcomes regarding the pricing (ie interest rates) of guaranteed deposits. At one extreme, a lack of competition among ADIs for retail deposits and inability of retail depositors to readily access alternative risk free investments could lead to interest rates being set below the “true” risk free interest rate. That outcome seems unlikely, at least for term deposit products, because of the risk free arbitrage opportunity available to the ADIs (of attracting retail deposits and investing in higher yielding government debt or other low risk assets).<sup>13</sup> A second possible outcome is that deposits are priced at the “correct” risk free rate of interest. If that does occur, then other investments which carry (actual or perceived) default risk will need to provide a higher expected return commensurate with that risk. While that would not provide any competitive advantage to banks in fund raising, it would provide them with a competitive advantage in loan and investment markets. A risky asset portfolio could be held, implying some risk to depositors who, however, provide funds at the risk free rate due to the government guarantee.

In practice, in Australia, there are considerable difficulties in identifying what is the “true” risk free rate of interest. A relatively small supply of government debt, together with overseas and domestic demand for that debt for liquidity and collateral purposes has, arguably pushed observed yields below a “true” risk free rate reflecting time preference.<sup>14</sup> And it is readily observable, in Figure 1, that the third outcome of “risk free” interest rates on bank deposits being higher than risk free rates on government debt of equivalent maturity has occurred.<sup>15</sup>

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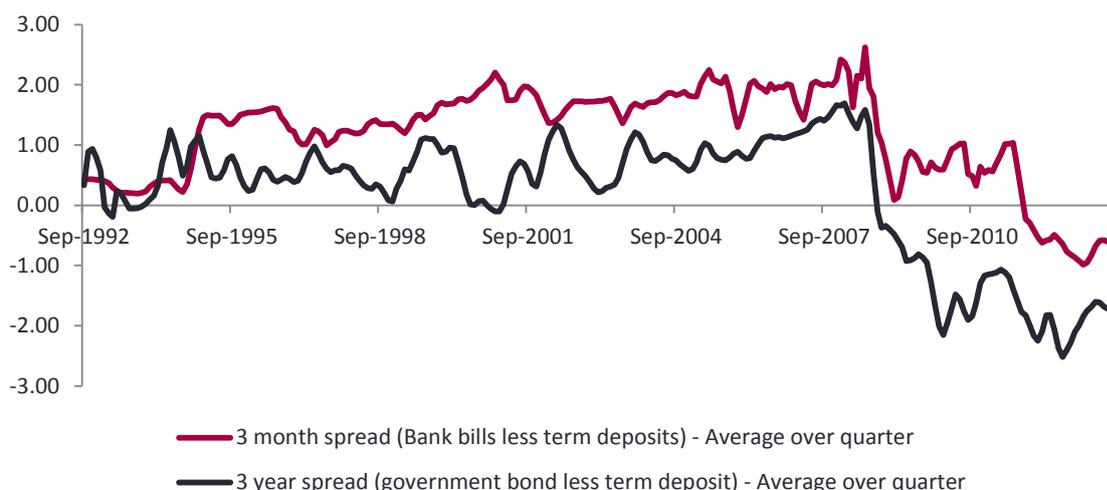
<sup>12</sup> There are also issues here related to the extent to which deposits by collective investment vehicles are treated as wholesale rather than on a “look through” basis as a collection of smaller retail deposits.

<sup>13</sup> For at call deposits, also offering transactions services, this argument is less applicable.

<sup>14</sup> There is no readily available risk free arbitrage strategy for retail investors to profit from the gap between risk free deposit rates and government bond rates, since that would involve short selling government bonds to invest in bank deposits.

<sup>15</sup> Given the absence of a continuous series for short term government treasury rates, 3 month bank bill rates have been used in the figure. Since bank bill rates will typically exceed treasury note rates, the short term yield spread shown understates the extent to which deposit rates now exceed treasury rates. Over the period May 2009 (when Treasury note issues recommenced) to May 2013, the 90 day bill rate exceeded the Treasury Note rate by an average of 23 basis points.

**Figure 1 Wholesale - Retail Deposit Spreads**



Source: RBA Bulletin Table F2

Although beneficial for depositors, this outcome has potentially significant adverse consequences for the Australian economy. Other institutions or borrowers seeking funds from the retail market will need to offer returns benchmarked against the risk free retail deposit rates on offer. Loan interest rates will reflect the rates paid on deposits by banks and other potential lenders will be constrained in their ability to compete due to their higher cost of funds.

This latter effect is related to, but not dependent upon, another form of distortion often cited in the literature on deposit insurance. This is the potential for *moral hazard* in the form of incentives for ADI owners (and managers) to increase the level of risk taking by the ADI. Free, or underpriced, insurance means that expected risk adjusted returns to ADI equity holders are increased when the ADI adopts a higher risk asset portfolio (even if there is no higher expected return on that portfolio). The reason is that the equity holders capture any upside if the investments are successful, while (a) their downside is limited to their amount invested and (b) the ADI cost of deposit funding is not increased due to higher risk taking. The potential for greater losses is borne by the deposit insurer. In the jargon of finance, the provision of deposit insurance by a government is akin to providing the equity holders with a put option giving them the right to put the assets of the bank to the government at a strike price equal to the amount owed to insured depositors.

Such risk-taking incentives can be realised in two main ways. One is to increase the leverage of the bank (ie operating with a lower capital ratio). The other is to increase the riskiness of assets acquired / loans granted by the bank. Risk weighted required capital ratios attempt to offset this moral hazard problem by linking required capital to the size of risk weighted

assets. While this moral hazard issue, and its control, is important, it is not considered further in this report.

It is possible to consider distortions arising from the FCS along a number of different dimensions. One is the impact on the size and competitive position of non-bank financial institutions and markets. Another is by consideration of the effect on particular types of financial products – including innovations in product design to exploit the guarantee. A third is the impact upon pricing of financial products. A fourth is in terms of the impact upon household demand for various financial products.

## 5. The Scheme's Impact on Household Asset Allocation

It is difficult to assess definitively the impact of the FCS on the financial investment decisions of the household sector because (a) there have been significant other disruptions in financial markets since the time of its introduction, and (b) there is a paucity of official statistics available providing adequate detail. For example, bank deposit figures published by APRA do not give a division of household deposits into at-call and term deposits, nor by size categories.<sup>16</sup>

However, one vitally important point needs to be noted. While it has been shown earlier that the FCS design enables individuals to obtain guarantees over very large sums of money by diversifying deposit holdings across ADIs, this is an option relevant only to quite wealthy investors. For the vast majority of households, actual and potential holdings of bank deposits are relatively small. The Davis Report (2004, Table 6.3) estimated that 94-98% of retail depositors had deposit balances in any one bank of less than \$50,000 and that a coverage limit (cap) of \$250,000 increased this coverage to 99.2 -99.8% of retail depositors. Subsequent studies have produced consistent information, and in announcing the reduction in the cap to \$250,000 in September 2011, Treasurer Swan indicated that this would provide full coverage of around 99 per cent of deposits. Connelly et al (2012) examine the HILDA data for 2010 and find that the median level of household bank deposits was \$9,000 and the average level was \$41,200. In the mid-year economic and financial outlook (Treasury, 2013) noted that at 31 August 2012 deposits eligible for coverage under the FCS were \$646.5 billion, which suggests an average level of deposits per capita of around \$30,000.

Further evidence can be found in data from the HILDA Survey, from which the RBA has extracted information on household financial asset holdings. As shown in Table 2, while most individuals have a bank deposit account, the median amount held even for the top percentile is only \$18,000. One relevant feature of that data is the small proportion of individuals with life insurance<sup>17</sup> – where a number of products such as annuities have similar characteristics to deposits

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<sup>16</sup> Much more detailed information is publicly available from APRA on characteristics of superannuation fund accounts.

<sup>17</sup> It would appear that these figures do not include group insurance provided through superannuation.

**Table 2 Distribution of household financial assets**

Percentile of income	Per cent of households holding assets			Median value of holdings for households holding assets (\$'000, September 2010 prices)		
	Deposits	Life insurance	Superannuation	Deposits	Life insurance	Superannuation
Less than 20	96	4	45	6	30	25
20-39.9	98	4	77	6	33	40
40-59.9	98	4	92	7	28	50
60-79.9	99	10	98	10	50	87
80-100	99	10	99	18	43	164

Source: RBA, Table B24

These figures suggest that the figures used in the Davis Report are still indicative of the distribution of retail deposits, and that very high levels of coverage could be achieved with a much reduced cap (eg of \$50,000). Reducing the cap would thus affect only a relatively small number of investors – but arguably the ones where most distortion in asset allocation from the FCS occurs.

Despite the paucity of useful data, some trends relevant to investor asset allocations can be discerned.

- a) The share of bank deposits in household financial asset holdings has increased since 2007, reversing the declining trend over the previous decades. Some part of this change reflects valuation effects – as the value of assets such as direct shareholdings and superannuation balances declined following the onset of the GFC. Table 3 illustrates. How much of the remaining effect is a result of increased bank competition for retail deposits in an attempt to alter funding mix, how much reflects portfolio reallocation due to risk aversion, and how much is due to the FCS is uncertain.

**Table 3 Household financial asset holdings (1990-2012)**

	Deposits	Shares	Super/Life	Unfunded Super	Other
Sep-90	29%	10%	36%	13%	11%
Sep-00	19%	19%	44%	9%	9%
Sep-07	15%	27%	46%	6%	5%
Sep-12	22%	16%	46%	11%	5%

Source: ABS 5232.0 National Accounts: Financial Accounts

- b) The composition of deposits on the Australian balance sheets of banks has changed significantly since 2008. Figure 2 illustrates the growth of term deposits relative to current/at-call deposits since the GFC. The downturn in current/term deposits began in late 2007 and has continued since the introduction of the FCS in October 2008. While these figures relate to total (not just retail) deposits, it could be expected that the change would be even greater for retail deposits, given that business and institutional holdings of current deposits are likely to dominate that category by value. However, figures for mutual ADIs which cater almost exclusively to retail customers do not show

such a pronounced downturn (Figure 3) – although this may reflect the effect of increased competition by banks for term deposits attracting such funds away from the mutuals. Ellis et al (2012, Table 1) report that household direct holdings of deposits at June 2012 were \$232 million of at-call and \$470 million term deposits, and that the respective growth rates between 2007 and 2012 were 8 and 14 per cent p.a. They also report that indirect holdings of deposits via superannuation and investment funds were \$236 million.

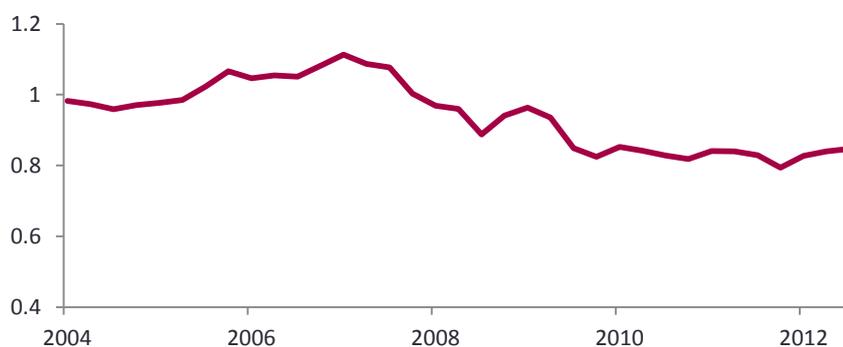
- c) Australian households appear to hold relatively little in the way of interest bearing assets outside of deposits in ADIs. Ellis et al (2012) note, based on HILDA data, that “In aggregate, households invest around two-fifths of their financial assets in interest-bearing assets. Household deposits have grown strongly over recent years, although there has been no growth in interest-bearing securities. Compared with other advanced economies, the share of interest-bearing assets in household financial assets remains low in Australia.”

**Figure 2 ADI at call deposit to term deposit ratio**



Source: Reserve Bank of Australia, Bulletin Table D3

**Figure 3 Mutual ADI at call deposit to term deposit ratio**

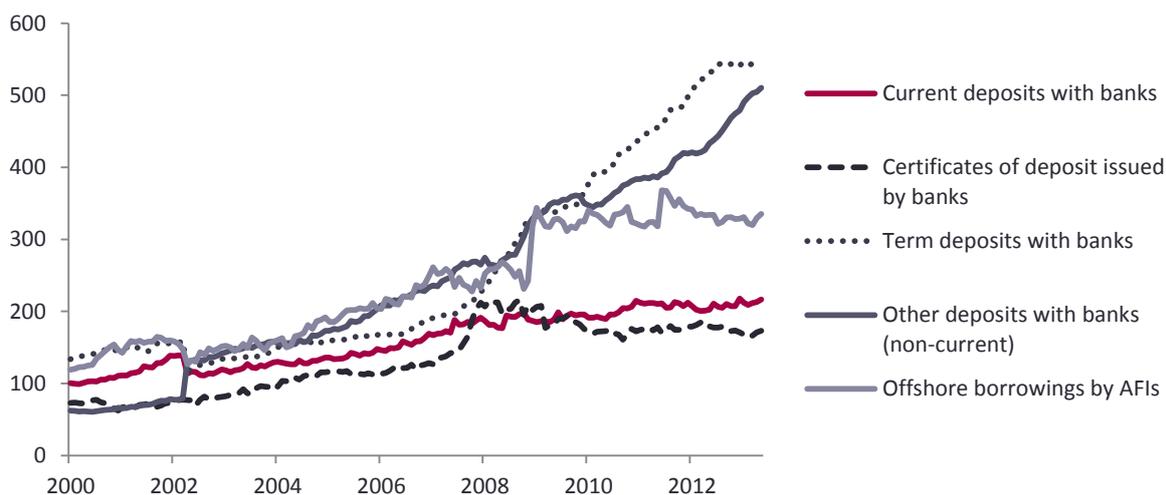


Source: Reserve Bank of Australia, Bulletin Table D3

It is worth noting that the introduction of the FCS has not enabled smaller mutual ADIs to gain a larger share of the deposit market – which may have been expected given public

perceptions of greater risk of mutuals relative to banks. It does appear, however, to have halted the downward slide in market share which had previously been occurring. The mutual ADI share of deposits (excluding foreign bank branches which cannot effectively compete for retail deposits) had fallen from 4.50% in December 2005 to 3.61% in December 2008, and at March 2013 was 3.54%.<sup>18</sup>

**Figure 4 Australian bank liability funding quantities**



Source: RBA, Table D3, 2013

## 6. The Impact of the FCS on other Financial Products and Institutions

As noted earlier, by changing the risk-return characteristics of bank deposits for retail investors, the FCS could be expected to affect household asset allocation decisions across a broad range of assets – but particularly those which are relatively close substitutes for deposits. As also noted earlier, separating the impact of the FCS from other developments in the financial sector is problematic

### 6.1 Money Market Funds (Cash Management Trusts)

It would be expected that money market funds such as cash management trusts would be one form of investment adversely affected by the introduction of the Financial Claims scheme – since they are a close substitute for at-call and term bank deposits. This does indeed appear to have been the case, with the size of the CMT sector declining markedly since 2008. One component of this decline was the decision of Macquarie Bank to close its (large) cash management trust and transfer customers' funds (subject to their approval) to a bank deposit product which would be eligible for coverage under the FCS. But even

<sup>18</sup> These figures are calculated by subtracting foreign bank subsidiary deposits from the total of all ADIs and comparing mutual ADI deposits to that figure found in APRA's quarterly banking statistics. Unfortunately the ADI deposit statistics do not distinguish between household and other deposits. (In principle, it would be possible to construct comparative series using the monthly banking statistics, but that is beyond the scope of this work).

excluding that change, the industry has suffered gradual decline. Another reason for the decline of the sector is the declining stock of short term high quality securities available for investment.<sup>19</sup>

During the mid-1990s money market funds grew in popularity as an alternative to bank deposit accounts. Money market funds invest in short-term highly liquid securities that generally have a maturity that is less than 1 year. ASIC provides the following table as guidance on the asset classes that money market funds generally invest in.

Asset Type	Examples
Cash	Cash receivables, bank deposits, time/call deposits, negotiable certificates of deposit, discount notes, bank bills, non-Australian dollar denominated cash, cash equivalent securities and other money market securities
Debt and fixed income securities	Government and semi-government securities, bills of exchange, promissory notes, notes, asset-backed bonds, corporate floating or fixed rate debts, commercial paper, treasury bills, and asset backed securities
Mortgage	Mortgage securities, collateralised mortgage obligations and mortgage-backed securities
Derivatives	Repurchase agreements and foreign exchange contracts. Derivatives are primarily used for hedging purposes

As collective investment schemes money market funds have traditionally held some advantages over bank savings accounts. These include:

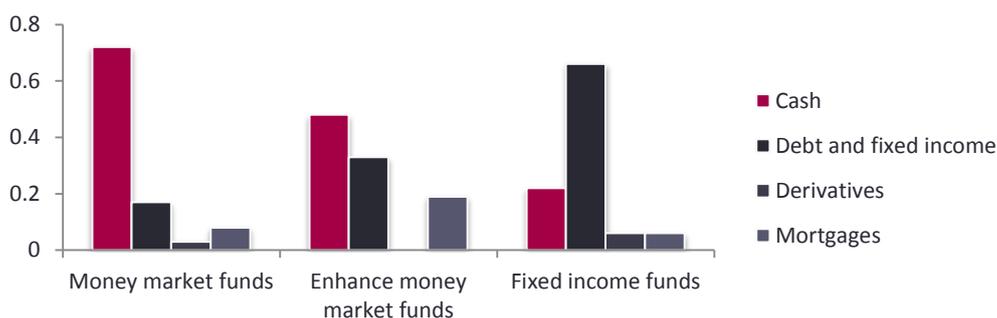
- Access to money market rates and other higher yielding OTC products unavailable to individual investors
- Expertise in assessing and managing short-term securities
- Offering a diversified portfolio of short-term instruments.

Money market funds by definition should hold a large proportion of their total portfolio in high quality, liquid, short-term securities and should not be mistaken for fixed income funds which generally have longer-dated and, depending on the fund, riskier underlying assets. A 2012 report by ASIC<sup>20</sup> investigated the holdings of Australian money market funds and found that the branding of money market funds generally provided an accurate indication of the nature of the funds underlying assets. (Figure 5)

<sup>19</sup> Not only has the stock of treasury notes on issue been low (or zero) for some time, but there has been a decline in the size of the bank accepted bill market and the commercial paper market. Banks have also reduced the relative interest rates offered on short term deposits from financial institutions.

<sup>20</sup> ASIC Report 324: Money market funds, December 2012

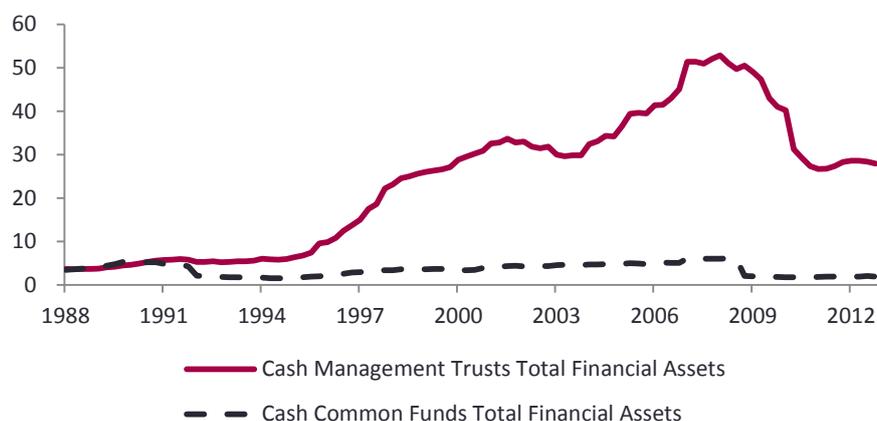
**Figure 5 Portfolio composition of money market, enhanced money and fixed income funds, 2012**



Source: ASIC Report 324: Money market funds, December 2012

Unlike savings accounts which can only be offered by APRA regulated banks, money market funds are collective investment schemes that are regulated by ASIC and therefore are outside the prudentially regulated perimeter. The ABS identifies the two largest sub-categories of money market funds as cash management trusts (CMTs) and cash common funds. Cash management trusts, as the name suggests, follow a trust structure whereby the funds of individual investors are pooled in exchange for units in the trust. These funds are then invested in relatively low-risk liquid assets. Cash common funds are similar to CMTs but are subject to additional state regulations. There has been a significant increase in total assets held by money market funds since the mid-90s however this growth has been solely in the CMT sub-category.

**Figure 6 Money Market Funds Total Financial Assets**



Source: ABS Cat 5655, Managed Funds, Mar 2013

While total assets managed by money market funds increased to almost \$60 billion by mid-2008. The global financial crisis brought with it a significant reduction in the total assets managed by money market funds. Macquarie Group who closed their \$10 billion dollar CMT in late 2008 cited the Financial Claims Scheme and improving the Group's balance sheet as

the two key reasons for closing the trust.<sup>21</sup> The largest currently active Australian money market funds as reported by Morningstar are listed below.

Fund name	Net assets (\$ million)
TPS Cash Management	900.45
Perennial Cash Enhanced Trust	871.77
Russell Australian Cash A	749.39
IIOF/Perennial Flex Cash & Income	672.83
UCA Cash Portfolio	517.74

The decline in the size of money market mutual funds since 2008 would appear to be largely due to the introduction of the FCS, and banks offering cash management account deposit products covered by the guarantee. While product specifications differ (the interest rate paid is determined by the bank rather than directly determined by investment earnings, and there may be tiered rates for different size balances rather than a pro rata entitlement) they are very close substitutes. In addition to the competitive disadvantage imposed on CMTs and money market mutual funds, there is also the potential for managers of such funds to adopt higher risk investment strategies (lower credit grade investments) in search of higher yields to offset the advantage given to bank deposits via the guarantee.

## 6.2 Finance Companies

Finance companies and general financiers (part of the “shadow banking” sector) offer bank like intermediation services and are mostly outside of the APRA regulatory perimeter. While some liabilities of this group are referred to as “deposits” these are typically provided by wholesale investors and not covered by the FCS. Additional funding is obtained from issuing debentures and unsecured notes to both retail and wholesale investors.

Debentures are fixed income securities generally issued by finance companies that are secured by the issuing company’s assets. The yield on a debenture security is a function of the underlying risk, term and liquidity of the security which is determined by the characteristics of both the issuing company and the security. Unlisted and unrated debentures should command a higher yield than comparable listed and rated debentures. Unlike debentures, unsecured notes are not collateralised by the issuing company’s assets.

<sup>21</sup> Macquarie steers \$10b from trust into deposit account, <http://www.smh.com.au/business/macquarie-steers-10b-from-trust-into-deposit-account-20100304-pltf.html#ixzz2ZNbcuKRg>

**Table 4 Face value of debentures on issue (\$ billion December 2008)**

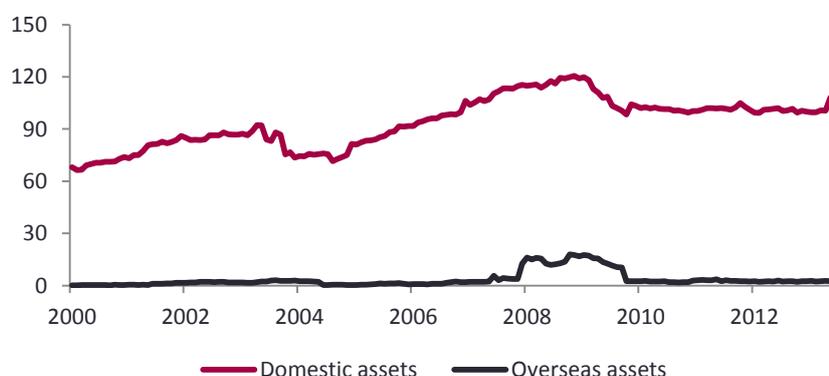
	Total issued	Number of issuers
Unlisted and unrated debentures	4.5	64
Unlisted and rated debentures	5.9	5
Listed and rated debentures	1.3	2
Listed and unrated debentures	5.2	39

Source: ASIC, Report 173

Finance companies typically provide finance for property investments and development, personal loans, leasing, equipment purchase, car financing etc. In this regard they are in competition with ADIs on both sides of the balance sheet.

Given the often short-term nature of debentures and unsecured notes, finance company securities have been a viable alternative to bank deposits for investors seeking additional yield. Prior to the GFC total assets of finance companies and general financiers grew strongly to a peak of \$138 billion in November 2008, but have since declined to \$108 billion as at June 2013. While “other borrowings” (which includes funds raised by debentures and promissory notes etc) had begun to fall from a peak of \$56 billion in October 2007, outstandings fell markedly from \$52 billion in October 2008 (when the FCS was introduced) to a low of \$36 billion in October 2009, and have recovered only marginally to \$41 billion in June 2013.

**Figure 7 Financial assets of Finance Companies and General Financiers: 2000-2013<sup>22</sup> (\$ billion)**



Source: RBA, Table B10, July 2013

There are a number of factors that may have contributed to the sharp reduction in financial liabilities of Finance Companies following the GFC including the default of a number of debenture issuing organisations at the end of 2008 (and subsequently). In response to these defaults, ASIC increased the disclosure requirements and implemented a benchmarking

<sup>22</sup> This chart is derived from data which comprises returns submitted by Finance Companies, General Financiers, Pastoral Finance Companies and Money Market Corporations.

reporting requirement for issuers of debentures.<sup>23</sup> Finally, because the liabilities of Finance companies are not covered by the Financial Claims Scheme, the relative risk premium required for finance company liabilities relative to bank deposits would have also increased.

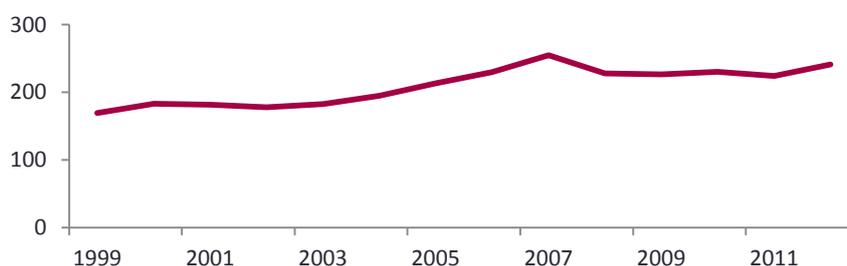
Reliable data on finance company debenture interest rates comparable with bank deposit rates is not readily available. However, at mid-August 2013, advertised rates by several finance companies for 3 year debentures were approximately 350 – 450 basis points higher than those advertised by banks for 3 year term deposits.<sup>24</sup>

It is likely that the FCS has been one contributor to the lack of growth of non-bank financiers such as finance companies which compete with banks for household savings, although recent failures of a number of finance companies are also relevant. The effect on ability to raise funds, implying a need to offer higher yields, also flows through into the ability of such institutions to offer viable competition in lending (and leasing) markets for households, small business.

### 6.3 Life Insurance Products

Currently there are 28 Life insurance companies operating in Australia with 4 of the larger insurers owned by the four major banks. The top 5 groups represent 88% of life insurance industry. The industry has grown slowly in terms of assets under management in recent years (see Figure 8) and become more concentrated over time (Figure 9). Life insurance risk business remains one of the few market segments to record growth during 2011/12, albeit at a slightly subdued aggregate level compared to previous years, and investment-linked business in life insurance is declining with risk and annuity based products being the principal areas of potential growth.

**Figure 8 Life Office Statutory Fund Assets (\$ billion)**

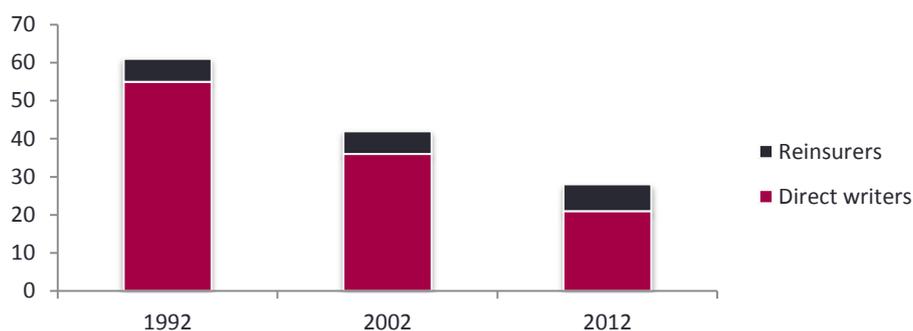


Source: *Life Insurance Trends, March 2008 and Quarterly Life Insurance Performance, June 2013*

<sup>23</sup> ASIC Regulatory Guide 69 – Debentures, improving disclosure for retail investors.

<sup>24</sup> Canstar.com.au, accessed 14 August 2013.

**Figure 9 Number of Life Insurers Operating in Australia**



Source: APRA Insight 2013 Issue 3

Traditionally the life insurance sector was a major provider of long term savings facilities (through endowment and whole of life policies) as well as a provider of insurance. Many of those traditional policies also involved investment linked returns, making them significantly different to bank provided savings products. The relative importance of the life insurance sector has declined over recent decades, partly reflecting the emergence of alternative forms of long term savings (superannuation) and investment opportunities (managed funds). The structure of life insurance contracts has changed to much greater emphasis on term (eg annual) contracts which provide risk protection without the savings element. The provision of life insurance within superannuation has also seen a relative increase in the significance of group insurance arrangements relative to sales of individual insurance products.

But another aspect of life insurance business which can be expected to grow in importance (in the absence of competitive disadvantages) is the provision of longer term income products such as annuities, catering for the running down (decumulation) of wealth to finance consumption by retirees. In general, these involve no investment risk for the purchasers, who are obtaining a fixed (or inflation linked) stream of cash flows promised by the product provider.

In examining which financial products might be appropriately covered by a guarantee scheme, the Davis Report (2004) drew a distinction between products which involved market (investment) risk and those which had no such risk, but where counterparty (default) risk existed. Products such as annuities fell into this category, and were viewed as being similar to bank deposit products – which are now covered by the Financial Claims Scheme.

That similarity is easily seen by noting that a term annuity of (say) ten years can be replicated by a package of term deposits of regular maturities ranging up to ten years. The annuity provides a regular (say) quarterly cash flow of \$X to the investor for an initial cash

payment amount. Purchasing a package of term deposits of appropriate size) which mature sequentially each quarter to deliver \$X each, gives the same future promised cash flow stream. Currently, that package of term deposits (if less than \$250,000 in total, and taking into account other deposits of the holder with the same ADI) is protected from default risk by the Financial Claims Scheme. However, the annuity provided by the life insurance company is not covered. Westpac, for example, is one bank which has recently provided an annuity style product which is covered by the Financial Claims Scheme because it is structured as a portfolio of term deposits covering a range of maturities.

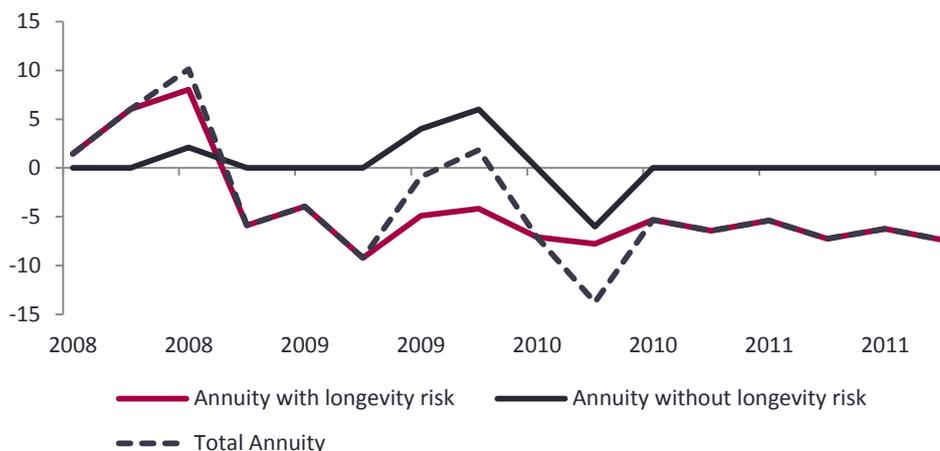
This is a clear distortion affecting the competitive ability of Life Offices to compete with banks. More generally, the exclusion of such annuity products from coverage by the Financial Claims Scheme appears anomalous given the potentially large impact of provider default on the holder. While retirees might diversify their retirement wealth across a number of financial products and providers, there are potential benefits from retirees making significant investments in annuity (and particularly lifetime annuity) products which are protected from default risk.

#### **6.4 Annuities**

Annuities are a close substitute for bank deposit products, in that an annuity stream of income can be constructed by a portfolio of term deposit contracts. Given the importance of annuity style products for retirees seeking a low risk cash flow stream, the FCS distorts investor choice towards guaranteed deposit products and away from annuities provided by other institutions such as life insurance companies.

This distortion reinforces other past policy measures which have reduced incentives for individuals to invest in annuity style products. In 2009, for example, there were less than 20 lifetime annuities written compared to nearly 2000 written in 2001. The removal of tax concessions for retirees converting superannuation balances into annuity products rather than taking lump sums or retaining a managed account (allocated pension) is relevant in this regard, as is the tax free status after age 60 of earnings on amounts retained inside a superannuation account in drawdown mode.

**Figure 10 Life insurers net policy revenue from annuity products (\$ million)**



Source: APRA, *Quarterly Life Insurance Performance*, March 2013

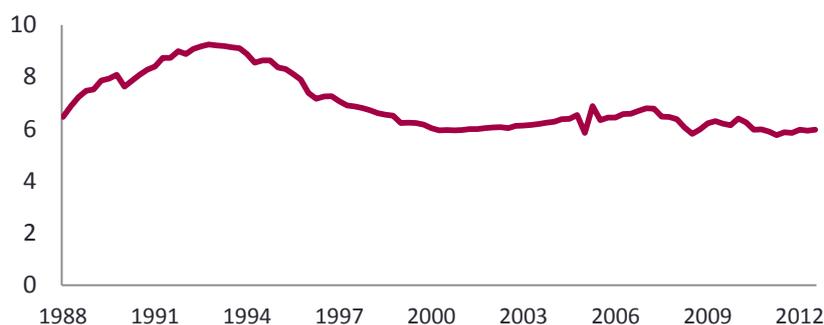
## 6.5 Friendly Societies

Friendly societies were originally member owned organisations that traditionally offered a suite of insurance and savings products (a number of those currently operating are no longer mutuals). Many of the long term investment products offered by friendly societies, including education and insurance bonds, are potential substitutes for bank savings accounts.

The friendly society sector has been in a steady decline from its peak in the early 1990s both in terms of assets under management and number of institutions in operation. The number of registered friendly societies has more than halved in the last decade and as of June 2012, only thirteen registered friendly societies remained active at June 2012. The reduction has been a result of a number of mergers, acquisitions and demutualisations in the sector.

Total funds under management by the sector have also decreased considerably from almost \$10 billion in 1993. Much of the decline can be attributed to the removal of tax concessions and a subsequent tax-disadvantaged position relative to superannuation as a long term investment option for individuals. While some products are structured to provide long term fixed interest type returns and thus potential substitutes for longer term bank deposits, others involve the policy holder bearing some degree of market risk. While the FCS could be expected to reduce the competitive position of the former product type vis a vis bank deposits, it is more likely that the lack of growth reflects the impact of superannuation.

**Figure 11 Total Funds Under Management - Friendly Societies (\$ billion)**



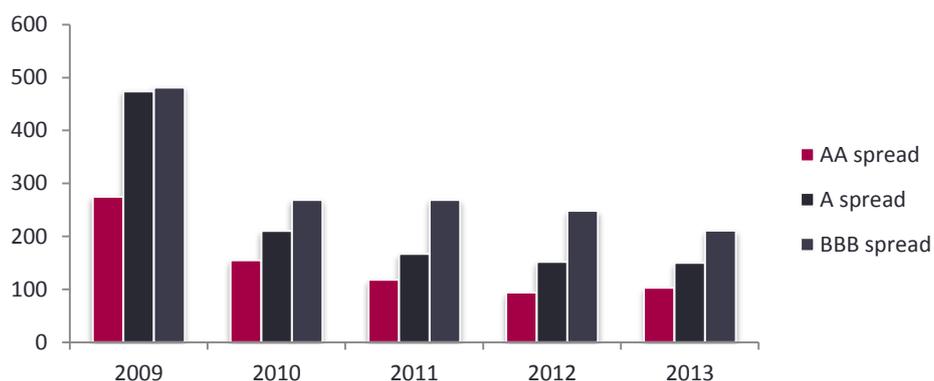
Source: RBA, Table 18, 2013

## 6.6 Corporate Bonds

There has been limited investment in corporate bonds by retail investors in Australia, although various hybrid products (such as convertible bonds and converting preference shares) have attracted interest at various times. In recent years, the Australian government has been attempting to promote the growth of a retail corporate bond market by, for example, changing issuance requirements.

The interaction of the FCS and relatively high yields on guaranteed bank term deposits must operate to reduce the potential for development of a retail corporate bond market. Since few retail investors have sufficient financial wealth to hold a diversified portfolio of corporate bonds, the credit risk associated with individual bonds implies a significant yield spread over bank deposit rates is required to attract interest. This is a disincentive for corporates to use this market as an alternative source of funding to bank loans. While banking regulation changes occurring as part of Basel 3 are likely to increase incentives for banks to promote corporate use of bond markets rather than on-balance sheet lending, the availability of guaranteed term investments at banks is likely to adversely affect the supply curve of funds for retail corporate bond issues. Liquidity regulation proposals in Basel 3 (the Net Stable Funding ratio) also provide banks with incentives to attract longer dated term deposits – which also has adverse supply consequences for a retail corporate bond market.

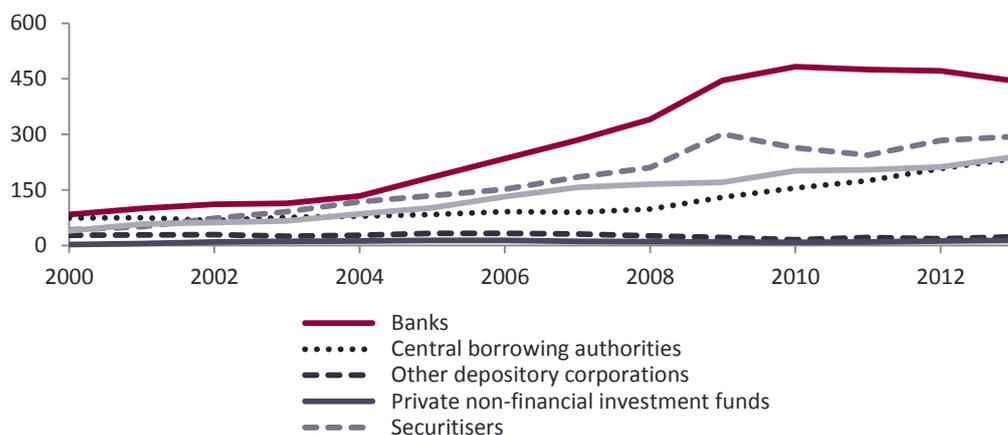
**Figure 12 Corporate Bond Spreads over Online Savings Accounts\***



Source: Derived from RBA tables F3 and F4 2013

\*All yields are computed in June of the corresponding year

**Figure 13 Australian bond issues outstanding by issuer, \$ billion (2000-2012)**

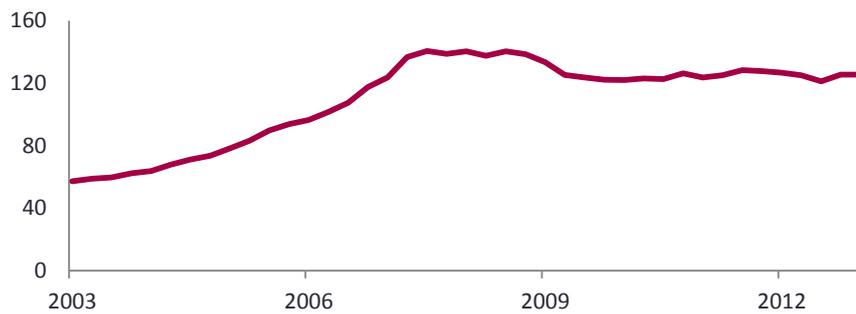


Source: Derived from RBA table 28. The Bonds Market (\$ million)

## 6.7 Mortgage and Property Trusts

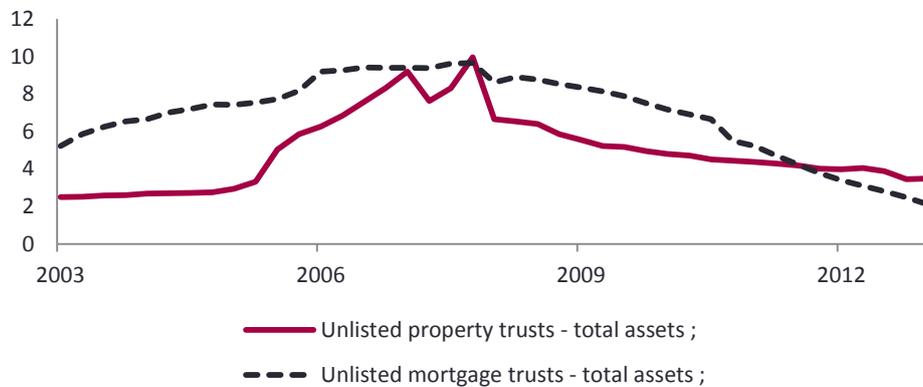
The introduction of the FCS in October 2008 reinforced the difficulties of mortgage and property trusts which were already experiencing outflows reflecting concerns over declining asset values. Many unlisted trusts were forced to suspend redemptions. The sector has continued to decline as shown in Figures 13-16. While some part of the decline may reflect valuation effects, most of it appears to reflect reduced investor interest in these types of investments, which compete with bank deposits. While listed real estate trusts have maintained their size, unlisted mortgage and property trusts have declined markedly in size. This has flowed through to their ability to provide funding for borrowers, with their holdings of mortgages, other loans and asset backed securities all declining substantially.

**Figure 14 Listed Property Trusts - Total Assets (\$ Billion)**



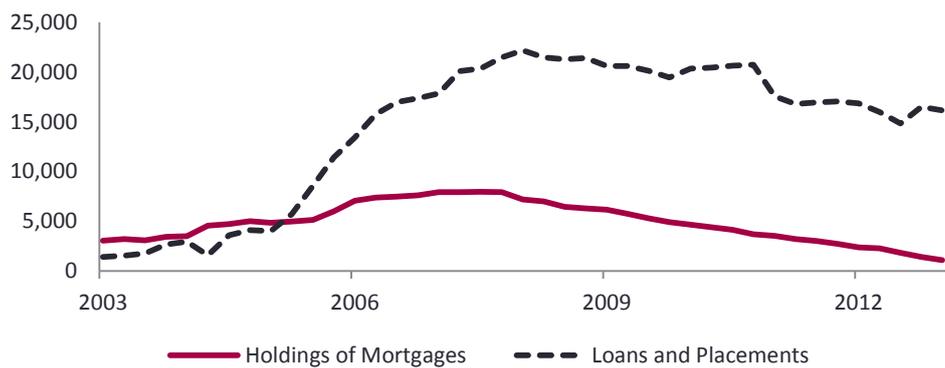
Source: ABS Cat No 5655.0 Table 5

**Figure 15 Unlisted Trusts: Total Assets (\$ Million)**



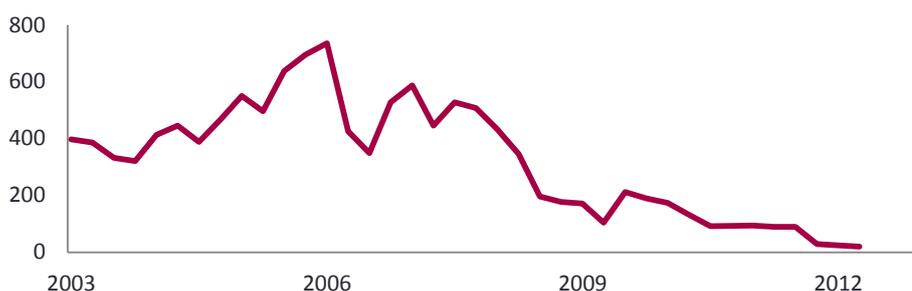
Source: ABS Cat No 5655.0 Table 5

**Figure 16 Public Unit Trusts: Mortgages and Loans (\$ Million)**



Source: ABS Cat No 5655.0 Table 5

**Figure 17 Public Unit Trusts: Holding of Asset Backed Securities (\$ million)**



Source: ABS Cat No 5655.0 Table 5

## 6.8 Self-managed Superannuation Funds

Self-managed superannuation funds (SMSFs) have grown significantly in size in recent years and now constitute around one-third of total superannuation assets. Investment strategies of these funds can vary quite markedly from those of institutional managers and many are heavily weighted towards investments in ADI deposits. This is reflected in the significantly higher average allocation to “cash” of this sector – which has also increased since 2008 (when the FCS was introduced). Also particularly noticeable is the miniscule allocation of “fixed interest”. SMSF trustees would appear to be allocating funds to term bank deposits rather than to other fixed interest products – partly in response to the guarantees provided over bank deposits. (Since the average size of SMSFs was just under \$500,000 at June 2012, a large proportion of assets can be placed in guaranteed deposits within a single institution and greater coverage obtained by diversifying across ADIs.

One complication arising from the operation of the FCS is the extent to which APRA will “look through” collective investments in bank deposits in determining coverage under the FCS. For example, a deposit of a large institutional super fund in a bank may represent relatively small amounts for a large number of members, which if invested in individual names would be covered by the FCS. This problem does not arise for SMSFs, enabling members of the SMSF to obtain a guarantee over bank deposits within the fund which is not available to members in large institutional funds.

**Table 5 Differences in asset allocation by super fund type: 2011**

	Not-for-profit	Retail	Small	Small 2008
Cash	3.0	3.4	29.3	26.4
Fixed interest	24.9	30.9	0.7	1.3
Aust equities	30.9	37.9	37.3	41.2
Other equities	17.2	17.9	0.3	0.8
Unlisted property	16.7	5.5	14.9	12.5
Other	7.2	4.5	17.0	17.8

**Table 6 Pension fund deposits as a percentage of total pension fund assets**

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
3.83%	4.12%	3.83%	3.51%	3.20%	4.41%	5.84%	6.29%	8.10%	8.91%

*Source: derived from ABS and APRA data*

In aggregate the relative growth of SMSFs over time would appear to be one of the drivers of the increase in deposit holdings of the pension fund sector shown in Table 6.

## 6.9 Product Innovations and the Financial Claims Scheme

Banks and other ADIs have incentives to design financial products which fall under the FCS umbrella of protection.

Recently, Westpac has released a PDS for a Westpac Annuity Deposit which provides a guaranteed stream of income for a term of between one to fifteen years. This product can be replicated by a package of individual term deposits of different maturity, but also offers the option of an inflation protected income stream.

While there is no life assurance component to the product (although remaining funds are released on death of the deposit holder) this is otherwise a direct competitor to term annuity products offered by life insurance companies. Given the potential growth in retirees seeking investments giving long term low risk income streams, the extension of the FCS guarantees to such products provides a significant competitive advantage in this market.

In principle, the Government should also have incentive to design financial products which provide an alternative to providing a guarantee over bank term deposits. Providing access to government bonds in suitable parcel sizes for retail investors would provide a safe haven for longer term savings. This may require creation of special types of securities and issuance/registry arrangements (in addition to the depository interests in wholesale bonds now tradeable on the ASX), but would remove much of the contingent liability associated with the FCS from the budget.

## 7. Conclusions

Based on the preceding analysis and evidence, it is apparent that the FCS is distorting the structure of household financial decision making and the relative competitive position of ADIs versus other financial market participants in savings, lending and investment markets. The following questions can be posed about whether the current design of the FCS is optimal, and suggests options for policy changes.

- Given the distortions caused by the FCS, one policy option could be to remove it. As argued in the Davis Report (Davis, 2004) the case for a deposit insurance scheme in Australia was finely balanced due to the existence of depositor preference arrangements which provide protection to depositors by virtue of seniority of claims in liquidation. That remains the case, and depositor preference arrangements could be further strengthened to provide priority to particular types or amounts or holders of deposits even in the absence of the FCS. In practice, there are several impediments to removing the FCS. First, the international pervasiveness of deposit insurance and agreement on its role as part of the core financial infrastructure could make non-conformity with international norms an issue. Second, the GFC experience reinforced perceptions of the existence of implicit guarantees which would become explicit in situations of stress. It is unlikely that depositors would treat repeal of the FCS as removal of guarantees, and thus retention of an explicit scheme may be preferable. Nevertheless, removal is an option – although other provisions of the scheme including strengthening of APRA’s powers and ability to effect open resolution of troubled ADIs (by merger etc) rather than liquidation are valuable changes to failure resolution in Australia.
- An alternative approach would be to increase the size of the guarantee fee charged to banks to reflect the benefits obtained from the perceived lower risk of deposits, thereby restoring some measure of competitive neutrality for institutions not covered by the FCS. Unfortunately, determining an appropriate fee is complicated by two factors. First, information on perceived bank credit risk on non-covered products such as credit spreads on bank debt, relates to bonds and other securities which are lower in the preference ordering than deposits. Identifying what would have been the credit spread on uninsured deposits (and thus the interest rate benefit to insured deposits) is thus more complicated than would be the (already difficult) case where deposits ranked equally with debt. Second, spreads on bank bond instruments will be partially affected by perceptions of the existence of implicit guarantees (or likelihood of government assisted open resolution of troubled institutions) and the likelihood that bondholders will thus suffer loss in the event of bank failure.
- The current size of the cap at \$250,000 is far in excess of the amount required to protect the deposits of most investors. The number of retail depositors with deposit account balances greater than \$50,000 or \$100,000 is relatively small. Moreover, this latter group (who can get aggregate guarantee coverage of over \$25 million by diversified deposit

investments across ADIs) is most likely to be those who have discretionary investment funds which might otherwise be invested in products offered by non ADIs. The case for lower cap appears to have merit.

- With any cap, there will always be the possibility of special cases of depositors with temporarily higher amounts on deposit with a failed institution (such as proceeds of a house sale prior to a subsequent purchase, or small business prior to payroll). Providing depositors with the option of guarantee coverage, for a fee, for amounts in excess of the cap, would be one way of dealing with such circumstances and also providing a “user pays” service for those desirous of higher coverage. As shown following the introduction of the FCS, some depositors were willing to pay (quite substantial) fees to insure deposits of \$1 million or more. However, unless the fee charged were commensurate with wholesale market spreads on bank debt, it would be necessary to impose some upper limit on the amount which could be eligible for such coverage. It may also be appropriate to make coverage of such larger amounts the default option. This, in effect would be a two tier cap system, with the premium for amounts within the upper tier being higher than for the lower tier, and with depositors having the option to opt out of coverage for the upper tier. Such a scheme would need specification of eligible deposit types (eg term or non-payments accounts) to minimize complexity and administrative expenses, but would enable those concerned about risk on larger deposit sums (either temporary or being invested for longer duration) to choose to buy protection. As well as generating budget revenue, the decision by some depositors to opt out of offered protection would also provide greater scope for government to impose losses on such depositors in the event of the ADI failure.<sup>25</sup>
- The larger is the cap, the greater is the proportion of insured deposits in the bank’s liabilities (even though the number of insured depositors is much less changed). Consequently, the probability that remaining assets of a failed bank in liquidation will not be sufficient to repay APRA for its payout of insured deposits, and thus require a levy on other ADIs, is increased. While that probability is currently very small, it would be reduced further by a reduction in the deposit cap.
- The case for introduction of an *ex ante* fee for the FCS is stronger when considered as compensation for competitive advantages to the industry arising from explicit and implicit guarantees and avoidance of disruption from exit of a failing institution, rather than as a pure insurance premium. Because (a) APRA will endeavour to ensure open resolution of failing ADIs, thereby avoiding liquidation, and (b) in the event of a liquidation the structure of priority arrangements makes it highly unlikely that APRA would not be fully compensated for payments made to insured deposits from the failed ADI’s assets, the likelihood of taxpayer losses or need for a levy on other ADIs is extremely small. Assessing the appropriate size of an FCS levy based on competitive

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<sup>25</sup> To the extent that “bailing in” or “haircutting” uninsured depositors in the event of failure such as occurred in Cyprus become the norm, such a two tier scheme provides some degree of political protection for such actions.

neutrality grounds is made problematic by the question of whether implicit guarantees are generally perceived to exist and outweigh the effects of the FCS.

- While, in principle, the government has a maximum explicit contingent liability equal to the size of insured deposits (of \$646.5 billion at 31 August 2012) this would require the inconceivable situation where all ADIs failed and had no assets of value upon which claims could be made. Any sensible estimate (using realistic estimates of probabilities of ADI liquidation and recovery shortfalls) of the contingent liability arising from the explicit guarantees of the FCS is close to zero. Contingent government liabilities are more applicable to the situation where an impending failure of one or more large ADIs leads to implicit guarantees being triggered and government support required to maintain ongoing institution viability and system stability being provided. The size of such contingent liabilities is impossible to estimate with reliability, and depends upon the inherent soundness and supervision of the banking system and willingness of government to enforce losses upon (rather than bail out) various stakeholders in failing institutions. Nevertheless, the size of the costs to a number of governments internationally from actions taken to stabilise their financial systems in the GFC indicates that such contingent liabilities can be substantial.
- While contingent government liabilities from the FCS (rather than from implicit guarantees) are minimal, international observers and ratings agencies need not necessarily understand the specific features that give rise to this. Consequently, the previous absence of an explicit *ex ante* fee for protection of insured deposits is something which has been noted adversely by entities such as the IMF (2012).
- To the extent that the FCS is largely motivated by the desire to ensure ready access to deposit funds to prevent disruption to household and small business activities, the logic for the guarantee to apply to term deposits is not clear. Similarly, the rationale for a deposit guarantee to prevent bank runs is less relevant to the case of term deposits where access on demand is at the discretion of the bank. Whether this suggests that the FCS should be limited to at-call deposits, or whether other term-style products issued by other prudentially regulated institutions should be covered by the FCS is an open question. More generally the FCS needs to be reviewed from a perspective of the merits of providing guarantees to particular types of financial products on a functional basis to ensure that like products are treated equally, rather than on the current institutional basis.
- If the motivation for the FCS is to protect poorly informed / unsophisticated depositors and provide a safety haven for their investments, then the question can be asked of whether all depositors should be provided with a guarantee on amounts up to the deposit cap. Arguably, individuals who pass the test applied by ASIC enabling them to be designated as “sophisticated” investors and able to participate in wholesale market product offerings (or dealing in derivatives) could be excluded from coverage on these

grounds. This logic could be extended to the case of self-managed superannuation funds, whose trustees are assumed to have sufficient financial literacy to make prudent financial decisions regarding their superannuation savings.

There is undoubtedly a case for a review of the structure of the Financial Claims Scheme.

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### *Appendix 1 Financial Claims Scheme for General Insurance*

The Financial Claims Scheme for general insurers was announced on the 2<sup>nd</sup> of June and legislated in October 2008. The FCS covers the claims of eligible policyholders against insolvent APRA regulated general insurance providers. The scheme does not cover policies issued by life insurers. The scheme applies to all claims below \$5,000 and all claims from individuals, small businesses, family trusts and not-for-profit organisations.<sup>26</sup> The scheme has been instated to both ensure the claims of these policy holders against APRA regulated general insurers are upheld and to allow policy holders to receive payment without having to wait for the outcome of an (often lengthy) liquidation process. The FCS only covers claims by policy holders and does not reimburse policy holders for unexpired premiums.

The FCS for general insurers is administered by APRA and funded by the Australian Government. The process for applying the scheme is as follows:

1. APRA must determine that the general insurer is insolvent
2. The finance minister must determine that the FCS will be utilised. (The best resolution for the insolvency is determined to be liquidation)
3. After liquidation any recoverable funds are repaid to the government ex-post. Any shortfall is made up through a levy on the general insurance sector.

As noted in the step 3 above, in the event that the FCS is applied and the value of the Commonwealth Government payouts cannot be recovered through the liquidation process a cost-recovery levy will be administered ex-post to make up any shortfall. The levy can be applied to the entire general insurance industry or a specific class of general insurer as determined by APRA and is charged as a percentage of gross premiums received. The maximum charge is currently 5% of gross premiums received.

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<sup>26</sup> Claims in excess of \$5,000 by medium and large businesses are not covered by the FCS.

## Appendix 2 Deposit Insurance Scheme Price and Coverage: International Comparison

Jurisdiction	Premiums		Assessment Basis	Back-Up Funding
	Risk-based	Rate		
Argentina	Yes	0.015-0.3% 1/	Eligible deposits	Borrow in market and require advanced premium payments
Australia	N/A	N/A	N/A	FCS is a post-funded scheme with no ex-ante fee. Standing appropriation from Parliament for up to A\$20.1 billion per failure (A\$20 billion to meet payout costs and A\$100 million for administrative fees), supported by a power to borrow funds.
Brazil	No	0.0125% of average monthly balances	Covered deposits	Special premiums, advances, loans from private sectors
Canada	Yes	2.8 , 5.6, 11.1, and 22.2 basis points	Covered deposits	It can borrow CAD 17 billion from the Government or markets (the limit increases annually in proportion to the growth in insured deposits). Additional borrowing requires a special Act.
France	Yes		Eligible deposits	Borrowing in market and additional premiums
Germany	Yes	0.016%	Liabilities of protected depositors	Extraordinary contributions from institutions; borrowing in market
Hong Kong	Yes	0.0175-0.049%	Covered deposits	Stand-by credit facility of HK120 billion (US\$15.4 billion) from the Exchange Fund
India	No	0.1%	Eligible deposits	RBI supplementary financing INR 50 m
Indonesia	No	0.2%	Average monthly deposits	Government lending facility and recapitalization facility
Italy	N/A	N/A	N/A	
Japan	No		Eligible deposits	Borrowing from central bank, in market or issuing bonds
Korea	No		Eligible deposits	Borrowing from the market, or issuing bonds, borrowings from the government or the central bank
Mexico	No	0.4%	A proxy of total bank liabilities	Ability to impose extraordinary premiums up to 0.3% of total bank liabilities; the sum of ordinary and extraordinary premiums must not exceed 0.8 % of total bank liabilities. Borrowing up to 6 %, every three years, of total bank's liabilities.
Netherlands	N/A	N/A	N/A	The central bank apportions costs ex-post over the banks.
Russia	No	0.1% of average quarterly balances (~0.4% annually)	Eligible deposits	Bond issuance, authority to temporary increase premiums by 0.3% (per quarter); unlimited federal budget support
Singapore	Yes	0.02-0.07%	Covered deposits	Private sources or central bank
Spain	Yes	0.002 basis points	Eligible deposits	Central bank can provide funding but requires passage of a law

Switzerland	No			Banking sector sources; all banks are members. They are required to hold 50% of their contingent liability in liquid assets. The DIA can borrow from the market.
Turkey	Yes	11, 13, 15, or 19 basis points; 1-2 additional basis. Points may be imposed based on a firm's size	Insured deposits	Advance payments from banks can be sought; may borrow from the Treasury, central bank may give advances
United Kingdom	N/A	N/A	N/A	The initial primary source of funding for the FSCS is levies on other deposit takers. The FSCS can also borrow from the market, and has the ability to apply to the National Loans Fund for support.
United States	Yes	2.5 - 45 basis points	Average consolidated total assets minus average tangible equity	\$100 billion line of credit from Treasury. Authority to borrow from Federal Financing Bank, Federal Home Loan Banks and insured depository institutions

Source: Financial Stability Board, *Thematic Review on Deposit Insurance Systems*

**Appendix 3 Deposit Insurance Scheme Caps: International Comparison (Coverage Levels as of year-end 2010)**

Jurisdiction	Deposit Coverage Level (US\$)	Total Domestic Deposit Base (US\$ billion)	Deposit Value (% of total)		Number of Fully Covered Eligible Depositors / Accounts (% of total)	
			Eligible	Covered	Depositors	Deposit Accounts
Argentina	7,545	95	N/A	29	N/A	94.9
Australia	1,016,300	1,336	95	61	N/A	>99
Brazil	42,000	933	77	22	98.9	N/A
Canada	100,000	1,803	64	35	N/A	97
France	136,920	1,742	92	67	N/A	N/A
Germany	136,920	3,395	~40	N/A	N/A	N/A
Hong Kong	64,000	877	98	20	90	N/A
India	2,240	1,166	95	33	N/A	92.9
Indonesia	235,294	279	90	61	N/A	99.9
Italy	136,920	2,050	45	31	55.1	N/A
Japan	122,775	11,101	90	71	NA	98.9
Korea	43,902	951	68	27	95.4	N/A
Mexico	146,606	178	100	58	N/A	99.9
Netherlands	136,920	1,202	59	48	80	N/A
Russia	23,064	692	47	32	96.5	99.7
Singapore	38,835	456	70	19	91	N/A
Spain	136,920	1,963	65	47	64.1	N/A
Switzerland	96,830	1,481	73	24	N/A	N/A
Turkey	32,341	399	59	25	86.5	88.7
United Kingdom	133,068	N/A	N/A	N/A	N/A	98
United States	250,000	7,888	100	79	N/A	99.7

Source: Financial Stability Board, Thematic Review on Deposit Insurance Systems

#### *Appendix 4: The Financial Claims Scheme and Portfolio Choice*

The FCS effectively converts “risky” bank deposits into “risk free” deposits for retail savers and investors and consequently can be expected to affect the portfolio decisions of individuals affected. The effects may be felt along the entire spectrum of risky assets and not just very close substitutes for bank deposits – although the effects are likely to be stronger for close substitutes.

The figure below illustrates in a simple context where it is assumed that initially investors have investment possibilities of a risky bank deposit (A), another risky asset (B) and a risk free asset (O). The risky asset portfolio frontier they face is the curved line (AB) and their overall investment frontier (including the risk free asset) is OC.<sup>27</sup> As depicted, given their risk return preferences they initially choose portfolio Y.

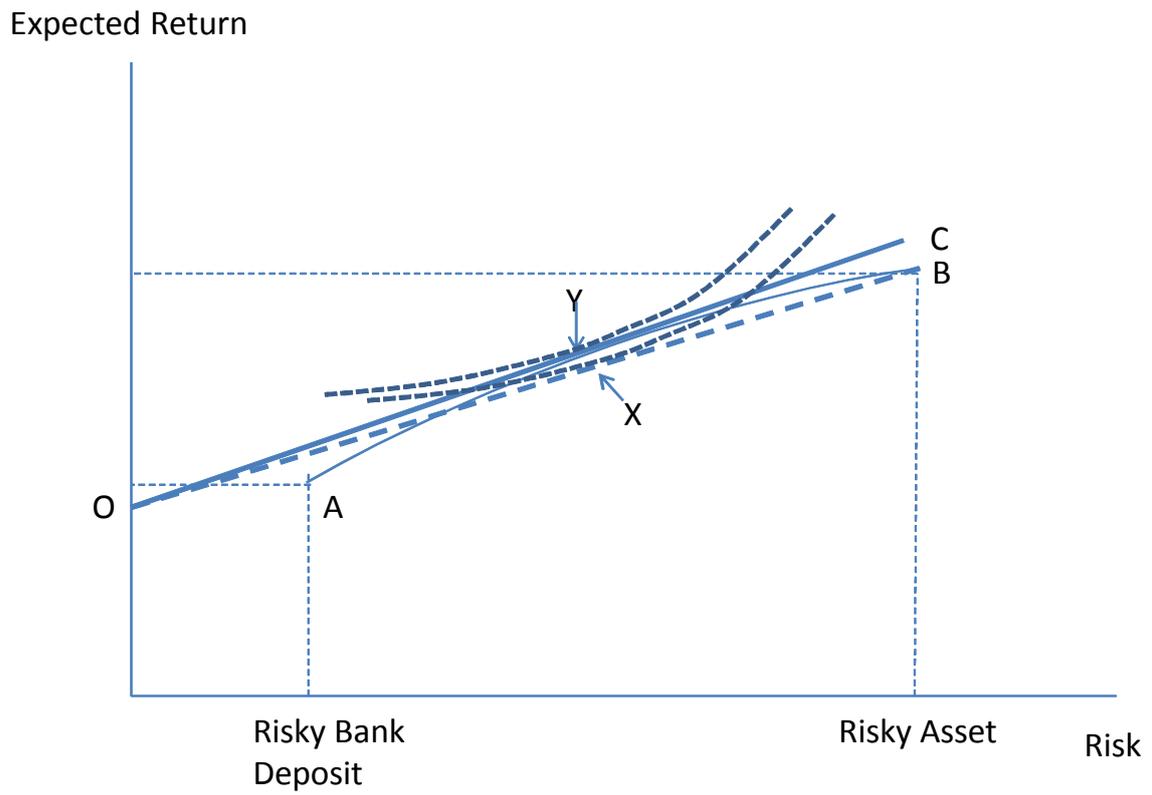
Following the introduction of a guarantee on bank deposits, it is assumed that the return paid on bank deposits declines to the risk free rate (they become equivalent to the risk free asset, ie point A disappears), such that the choices available to the investor lie along the straight line OB. The investor choice is now at point X, involving a different risk return allocation and allocation to risky assets.

As drawn the investor now has lower utility, but this is purely an result of implicit assumptions about the pre- and post- guarantee expected returns on bank deposits and asset return correlations. Different assumptions would yield different results – including higher utility. Moreover, this is a partial equilibrium analysis, and the assumptions that the expected return on risky assets is unchanged, the risk free rate is unchanged, and that risky bank deposits pay a higher return than the risk free rate, may be inappropriate.

However, the objective of this analysis is not to predict likely changes, but simply to illustrate that it is not just investor choices regarding risk-free or near-risk-free assets which may be affected by the introduction of a guarantee on bank deposits. The entire risk return trade-off facing retail investors is affected such that portfolio decisions involving all risky assets may be affected.

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<sup>27</sup> The frontier AB is curved to reflect less than perfect correlation of returns of the two risky assets, and OC is the line from O tangential to AB, which indicates the best available risk-return combinations. The convex dotted curves represent investor indifference curves trading off expected return for risk.



**Appendix B: Economic impacts of reforming the Financial Claims Scheme  
(25 August 2014)**

# **Economic impacts of reforming the Financial Claims Scheme**

This report was prepared for Challenger Limited

25 August 2014

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# Executive summary

## Introduction

The Financial Claims Scheme (FCS) was introduced as part of the Government's response to the Global Financial Crisis (GFC). Like other bank deposit insurance schemes around the world, its primary aim is to reduce the risk of severe runs on banks by providing a guarantee that the insured deposits are safe. This is important because severe bank runs can lead to bank failures that generate high economic costs.

At the same time, there are three aspects of the FCS that may be leading to higher than necessary costs in achieving the desired benefits.

- 1) First, the FCS does not impose an ex ante premium on ADIs for the insurance cover that is provided. "Free" insurance cover with ADIs can distort the choice of consumers in favour of investing in ADI versus non-ADI financial institutions.
- 2) Second, by lowering the costs of bank failure, the FCS may lead to more risky bank lending. Some jurisdictions address this "moral hazard" problem by applying risk-rated insurance premiums that penalise excessively risky lending with higher premiums.
- 3) Third, FCS insurance coverage is broader than in most major countries with deposit insurance, apart from the USA. The insured value is unusually high and is applied for each bank used by an account holder. This wide coverage adds to FCS costs.

Against this background, the IMF (2012) has recommended that Australia introduces insurance premiums and makes them risk rated. Currently, the Financial System Inquiry (FSI) is assessing the FCS as part of a wider examination of the financial system. In its Interim Report of July 2014, the FSI invited views on the costs and benefits of lowering the insured threshold or introducing an ex ante fee (Financial System Inquiry, 2014, p. 3-18).

This report, which was commissioned by Challenger Limited (Challenger), responds to the Inquiry's invitation with economic modelling of the costs and benefits of lowering the insured threshold and introducing an ex ante fee. It also models abolishing the FCS to test whether the costs of the scheme in its current form are covered by its benefits.

## Review of the FCS

In assessing potential reforms to the FCS, the potential benefits and costs of the FCS and alternative policies need to be weighed up. These are now discussed.

### Bank runs and insurance

Bank runs are costly. When enough depositors believe that a bank is no longer safe and attempt to withdraw their money, a bank will fail because most of its assets are illiquid. Thus, the bank failure becomes a self-fulfilling prophecy. The banking system is disrupted in playing its main roles of acting as intermediaries between borrowers and lenders and generating liquidity for depositors.

Bank runs also create inequities. Depositors who withdraw their funds early enough may not incur any loss, whereas other depositors may lose some or all of their money once the bank fails.

Bank deposit insurance means that insured depositors can receive all of their money back when a bank fails. If insurance makes depositors believe that their money is safe, they are less likely to join a run so the risk of bank failure is reduced. Thus, bank deposit insurance may increase the productivity of banking services both by making bank failures less likely and, when they do occur, less disruptive.

### Allocative Inefficiency

Under the FCS, the availability of “free” insurance from ADIs can distort the choice of consumers in favour of investing with ADI rather than non-ADI financial institutions. This non-level playing field may lead to allocative inefficiency, with the ADI sector oversized and the rest of the financial sector undersized. This is consistent with the shift to insured deposits that was observed during the GFC.

This distortion could be partly addressed by following many other countries with deposit insurance by applying an ex ante premium on the insured deposits of ADIs, in line with the principle of user pays. This also means a pool of funding would be accumulated to help fund future insurance payouts. Overseas experience, particularly during the GFC, shows that such funding pools may be emptied at times of financial crisis and governments then generally step

in with backup funding. Thus, in practice the introduction of premiums usually reduces rather than eliminates government support of bank deposit insurance. This will also be true for the associated allocative inefficiency from favouring bank over non-bank financial institutions.

### Moral Hazard

Insurance can create a “moral hazard” problem: by reducing the costs of risky behaviour, insurance may increase its prevalence. Because they are protected from bank failure, insured depositors choosing a bank may be less focussed on whether a bank lends prudently than uninsured depositors. This relaxation of market discipline from depositors may lead to excessively risky lending, making bank failure more likely. Thus, Barth et al. (2013) conclude that: “while instilling confidence in depositors that their funds are always safe, so as to prevent bank runs, deposit insurance simultaneously increases the likelihood of another serious banking problem in the form of moral hazard”.

Of course prudential regulation and supervision do aim to safeguard against excessively risky lending by banks. However, this task becomes more challenging when moral hazard from bank deposit insurance is introduced.

As Barth et al. (2013) observe: “it is important for government to realise when designing a scheme, one must take into account the effect the various features will have on both depositor confidence and moral hazard”. The existing design features of the FCS show more of a focus on depositor confidence than moral hazard. This is understandable in that the FCS was introduced in response to a potential crisis in depositor confidence from the GFC. However, the FSI provides an opportunity to review the FCS and make it a more balanced scheme.

Other countries, including the USA since 1993 (Ellis, 2013), and Canada (CDIC, 2014), apply risk-based insurance premiums calibrated to the level of risk of each bank. “The advantage of risk-based premiums is that they potentially can be used to induce banks to avoid engaging in excessively risky activities” (Barth et al., 2013).

Hence, one FCS reform option modelled is to introduce ex ante premiums, and make those premiums risk-rated. The former would partly address the competitive neutrality problem, while the later would address the moral hazard problem.

At the same time, premiums introduce a new cost. They are used to accumulate a pool of funds to finance future payouts to depositors of failed banks. These quarantined pools of funds that might otherwise be invested have an opportunity cost.

## Coverage

Another way to reduce moral hazard would be to reduce the coverage of the FCS. The scope of the FCS in its present form is broader than for bank deposit insurance schemes in most other major jurisdictions, apart from the USA, which has similar scheme coverage. This broad scope has three dimensions.

First, the insured value is capped at \$250,000, whereas it is capped at the equivalent of around AUD 100,000 in most other high-income countries with deposit insurance (Demirgüç-Kunt, Kane and Laeven, 2014). As Barth et al. (2013) note: “the higher the limit the more protection is offered to individual depositors, but the higher the limit the greater the moral hazard”.

Second, the insured cap under the FCS is provided for each bank used by an account holder. This provides an incentive for account holders to open accounts at more banks to obtain more insurance cover. The cost of opening additional accounts in response to regulation represents a deadweight loss to the economy (Shy, Stenbacka and Yankov, 2014).

Third, the FCS has no coinsurance. Countries with coinsurance require that depositors bear up to 10 per cent of losses. Barth et al. (2013) find that in practice this relatively small percentage of coinsurance is enough to “help to curb moral hazard”.

Reducing the broad coverage of the FCS in any or all of the above three areas would help to improve the focus of the scheme on containing moral hazard for bank lending. In this report, one FCS reform option modelled is to reduce the insured cap from \$250,000 to either \$100,000 or \$50,000, while removing the incentive for account splitting by aggregating over accounts at different ADIs before applying the cap.

Reducing coverage, and the associated government backing of bank deposits, also reduces the allocative inefficiency problem. It reduces the extent of the favouritism from government backing of bank deposits when there is no similar government backing of household investments with non-bank financial institutions.

## The Independent Extended CGE model and the FCS

This report simulates the economic impacts of various FCS reform options using the Independent Computable General Equilibrium (CGE) model, which was extended for this report. The three broad finance industries found in Australian CGE models were disaggregated to 12 industries, so that ADIs are identified as a separate industry. Further, the structure of modelling consumer choices was enriched to take into account that ADI financial services are more closely substitutable for non-ADI financial services than for other goods and services.

The above extensions to the usual CGE modelling approach are fundamental if a CGE model is to provide useful insights into the economic impacts of FCS policy options. Even so, the results provide a broad (rather than a more precise) guide, because of the complexities and uncertainties in the impacts of FCS policy options.

The model results refer to the long-term, after the economy has fully adjusted to economic shocks. This is fitting for policy analysis because economic policies should be judged against their lasting effects on the economy, not just their effects in the first one or two years.

## The FCS Scenarios

The model was used to simulate seven policy scenarios. The design of each of these scenarios is summarised in Table A. Some of these scenarios focus on the areas in which the Interim Report of the FSI invited submissions on the costs and benefits of incremental change. Other scenarios are designed to assess the costs and benefits of each policy scenario.

The *baseline scenario* refers to the existing policy of the FCS in its current form. It provides the point of comparison for the other scenarios.

### Lowering the insured amount

The next two scenarios lower the insured amount. The *\$100k scenario* reduces the coverage limit from \$250k to \$100k and applies it to each account holder once, after aggregating holding across ADIs. The *\$50k scenario* reduces the coverage limit by more, from \$250k to \$50k, and also applies it to each account holder once. These coverage reductions reduce, but do not eliminate, the moral hazard and allocative inefficiency costs of the FCS.

*Table A Design of Policy Scenarios*

Features	FCS (baseline)	\$100k limit	\$50k limit	apply premium	limit + premium	abolish FCS	costless scheme
coverage limit	\$250k	\$100k	\$50k	\$250k	\$50k	na	na
separate limit per ADI	yes	no	no	yes	yes	na	na
premium	no	no	no	yes, risk- based	yes, risk- based	no	no
severe bank runs	no	no	no	no	no	yes	no
moral hazard	yes	reduced	further reduced	no	no	no	no
allocative inefficiency	yes	reduced	further reduced	further reduced	largest reduction	no	no
insurance pool cost	no	no	no	yes	no	no	no

### Introducing insurance premiums

The *apply premium* scenario introduces an ex ante premium and calibrates it to the risk of each bank. This is in keeping with a recent IMF (2012) recommendation for the FCS.

The authorities should re-evaluate the merits of ex-ante funding for the FCS with a view toward converting it to an ex-ante funded scheme... with an objective to implement risk-based assessments over time. (IMF, 2012).

In the modelling, risk-rated premiums remove the moral hazard cost and reduce the allocative inefficiency cost of the FCS, while introducing a new cost of maintaining a funding pool.

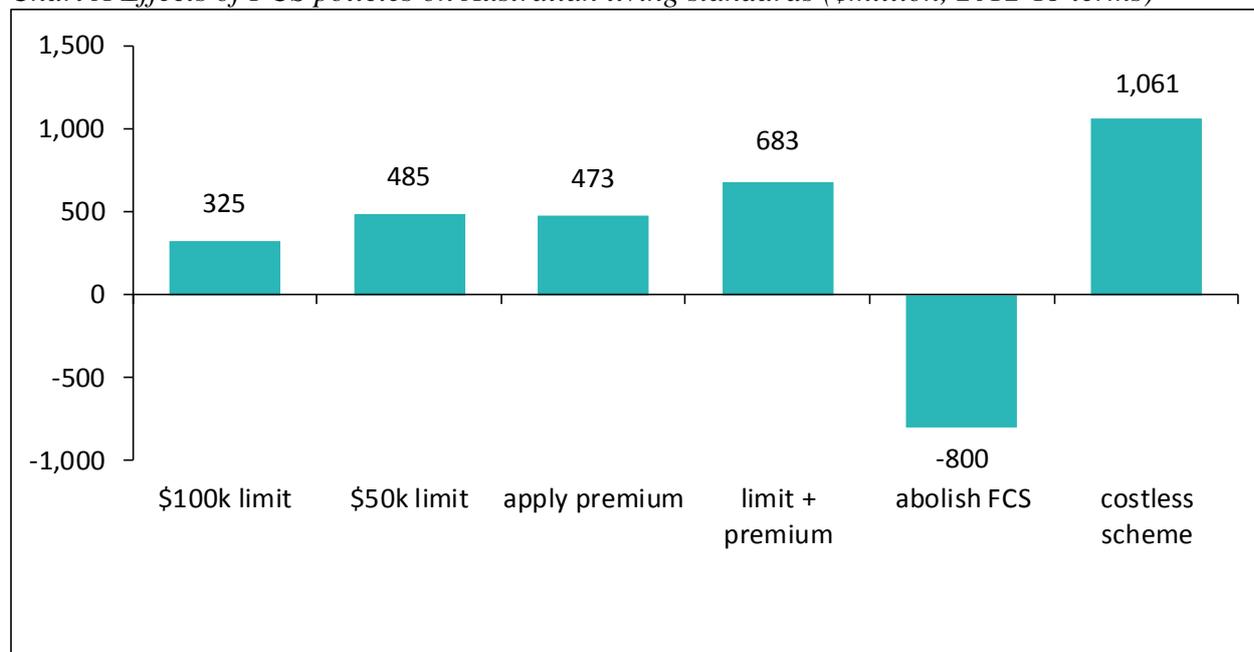
The *limit + premium* scenario combines the two ideas for improving the FCS i.e. it combines reducing the coverage limit from \$250k to \$50k with introducing risk-rated premiums.

### Abolishing the FCS

The *abolish FCS* scenario simulates the abolition of the FCS. Its costs disappear, but so does its benefit of eliminating severe bank runs. The *costless scheme* scenario makes the hypothetical assumption that an ideal scheme could be devised that prevented severe bank runs while incurring no costs. It is designed to identify the costs of the FCS.

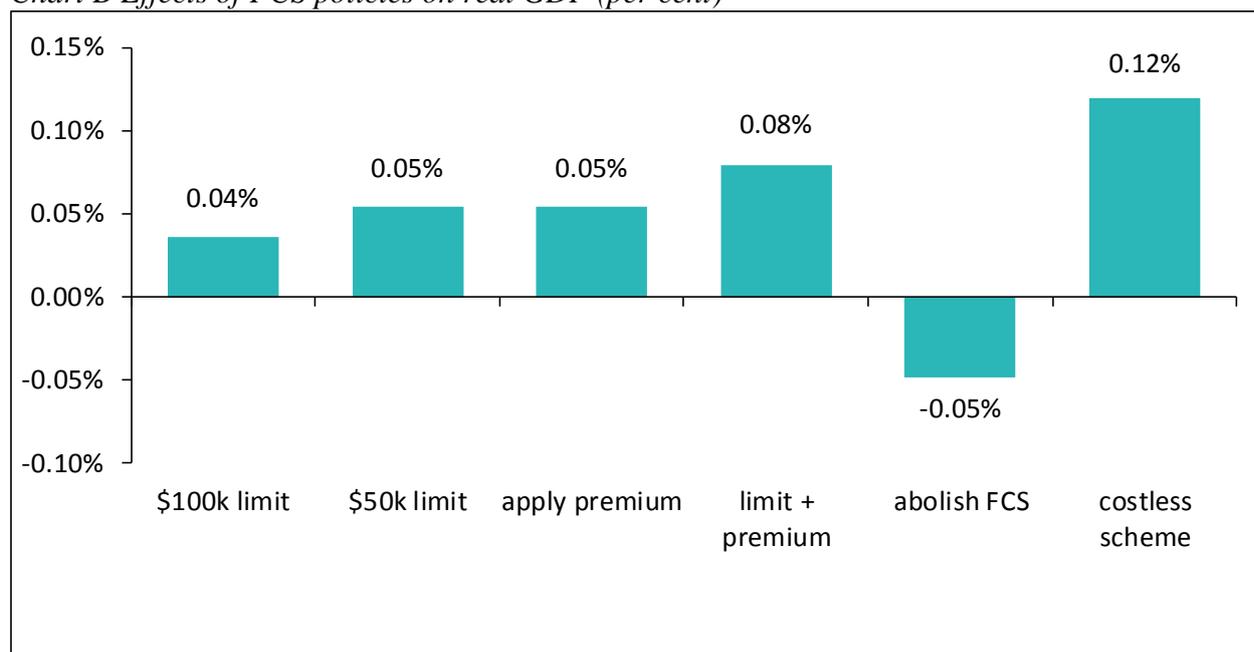
The comparative results from the scenarios are presented in Charts A to D. These results refer to long-run outcomes, after the economy has fully adjusted to each policy change. The results are expressed as deviations from the baseline scenario, which includes the FCS in its present form. Hence, they show the incremental economic impacts of alternative reforms to the FCS.

Chart A Effects of FCS policies on Australian living standards (\$million, 2012-13 terms)



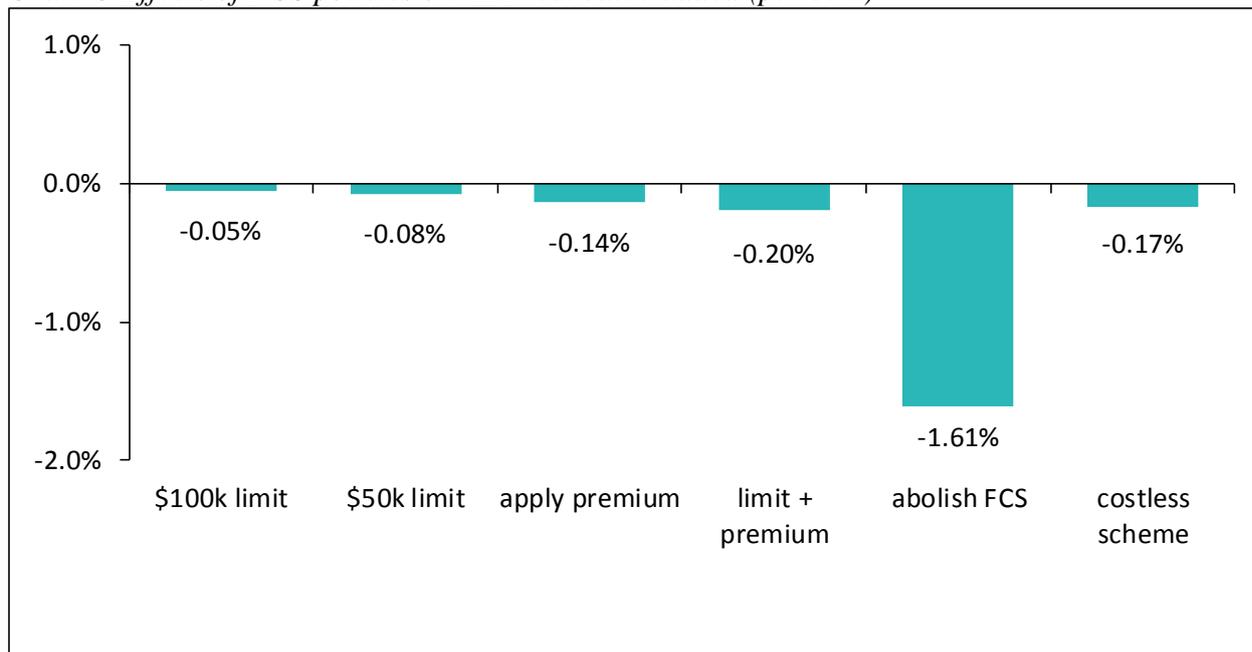
Source: Independent Extended CGE model

Chart B Effects of FCS policies on real GDP (per cent)



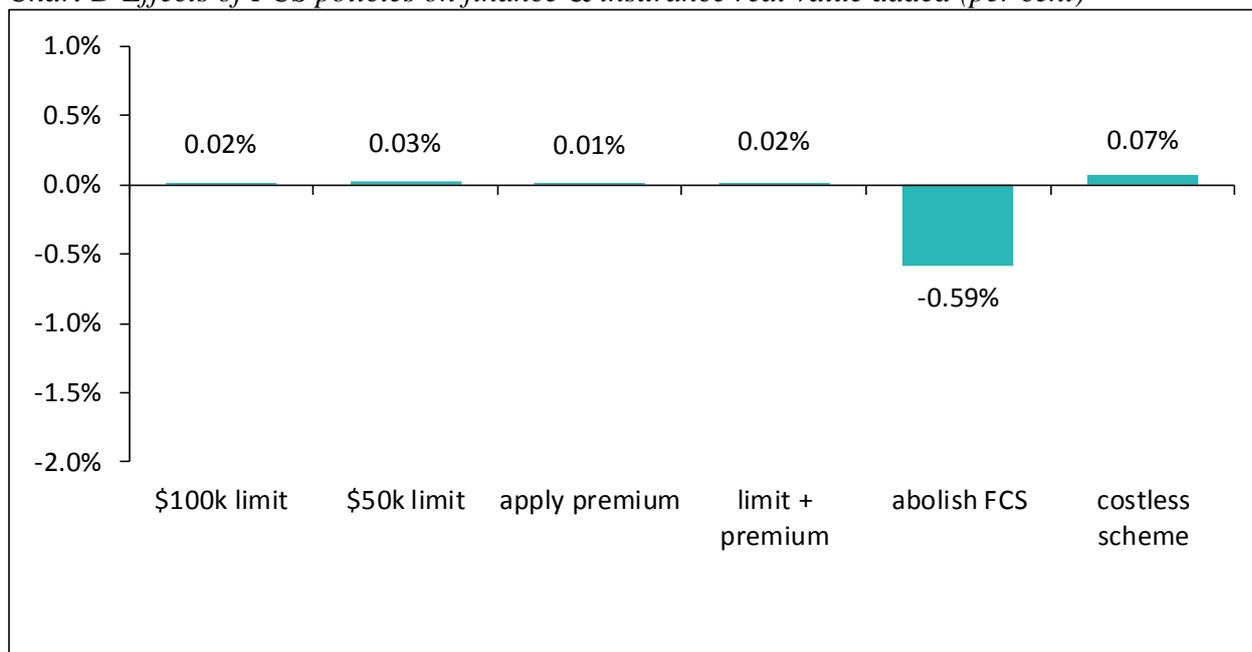
Source: Independent Extended CGE model

*Chart C Effects of FCS policies on ADI real value added (per cent)*



Source: Independent Extended CGE model

*Chart D Effects of FCS policies on finance & insurance real value added (per cent)*



Source: Independent Extended CGE model

## Lowering the insured amount

Reforming the FCS by lowering the insured threshold and closing the account splitting loophole lowers the moral hazard and allocative inefficiency costs of the FCS. This generates a sustained gain in consumer living standards on an annual basis of \$325 million under a reduction in the threshold to \$100k, or \$485 million under a larger reduction in the threshold to \$50k (Chart A). Similarly, reducing the insured threshold provides an ongoing boost to the level of GDP. This boost is 0.04 per cent or 0.05 per cent, depending on the extent of the reduction in the threshold (Chart B).

In both scenarios, activity in the ADI sector itself, as measured by real value added, is slightly lower (Chart C). This is the net result of significant effects operating in both directions. On the one hand it gains a boost in productivity from the reduction in moral hazard and the associated excessively risky lending. On the other hand, it loses because reduced coverage of the FCS means that ADIs have less free cover to provide to consumers, prompting a small shift in consumer demand away from ADIs. However, this development reflects a partial unwinding of the allocative inefficiency from free deposit insurance, and so is a positive development for living standards and the economy as a whole.

For example, the shift in consumer demand away from ADIs benefits non-ADI financial institutions. This contributes to slightly higher real value added for the financial sector as a whole (Chart D).

## Introducing insurance premiums

Reforming the FCS by introducing insurance premiums and making them risk-rated removes the moral hazard problem, while developing an insurance pool of funding that has an opportunity cost. The second effect only partly offsets the first, leaving a small gain in productivity for the ADI sector. Introducing premiums also reduces the existing allocative inefficiency resulting from “free” insurance. This combine with the productivity improvement to lead to a significant overall gain in living standards on an annual basis of \$473 million (Chart A). Similarly, there is a significant gain in GDP of 0.05 per cent (Chart B).

Real value added in the ADI sector is down 0.14 per cent (Chart C). This is because the benefit to the ADI sector of its productivity gain is more than offset by the cost to it of partly restoring

a level playing field by requiring ADIs to pay for their deposit insurance. This development causes a shift in consumers from ADI to non-ADI financial institutions. The gain for non-ADIs is sufficient to maintain activity in the finance sector as a whole (Chart D).

The estimated gains in living standards and GDP are very similar for introducing risk-rated premiums or lowering the insured limit to \$50k. These two policies are combined in the *limit + premium* scenario.

As would be expected, this shows a larger gain in annual living standards of \$683 million. The gains from the two policies are not fully additive ( $\$485m + \$473m < \$683m$ ) because there is some overlap in the sources of the gains from the two reforms. Similarly, the gain in GDP is boosted to 0.08 per cent, compared to 0.05 per cent from either policy in isolation.

## Abolishing the FCS

Abolishing the FCS removes both its benefits and costs. Losing the benefit of eliminating severe bank runs is only partly offset by the savings from eliminating the moral hazard and the allocative inefficiency costs of the FCS. Hence, abolishing the FCS results in a significant loss in living standards on an annual basis of \$800 million (Chart A). Similarly, there is a significant loss in GDP of 0.05 per cent (Chart B). Thus, the results suggest that the FCS should be retained rather than abolished.

Abolishing the FCS would have a substantial negative impact on the ADI sector. There is a loss in its real value added of 1.61 per cent (Chart C). This is the effect, averaged over time, of removing bank insurance. It reflects the disruptions to banking services resulting from severe runs, which are rare in Australia but potentially highly damaging when they do occur. It is also reflected in a loss in real value added for the finance sector as a whole of 0.59 per cent (Chart D).

The final scenario models a hypothetical costless solution to the problem of the risk of bank failures. Removing the costs of the FCS while retaining its benefit of eliminating severe bank runs results in a significant gain in living standards on an annual basis of \$1,061 million (Chart A). This can be interpreted as the potential economic “prize” from reforming the FCS.

Comparing the living standards results from the final two scenarios also provides a breakdown of the costs and benefits of the FCS on an annual basis. They imply that it provides a benefit of \$1,861 million and a cost of \$1,061 million, giving a net benefit of \$800 million.

Overall, the scenarios indicate that the FCS should not be abolished, but it should be reformed. Very similar gains are available from either reducing the coverage to be in line with international practice, or from introducing risk-based premiums. However, the largest gains are available from introducing both policy reforms.

# 1 Introduction

The Financial Claims Scheme (FCS) was introduced as part of the Government's response to the Global Financial Crisis (GFC). In its present form, it provides a government guarantee of retail deposits held at Authorised Deposit-taking Institutions (ADIs) up to the value of \$250,000 per account holder per ADI. Like other bank deposit insurance schemes around the world, it has two main aims. Its primary aim is to reduce the risk of severe runs on banks by providing a guarantee that the insured deposits are safe. This is important because severe bank runs can lead to bank failures that generate high economic costs. Second, it aims to protect smaller, less-informed depositors from the risk of losses that they did not understand when making deposits into their bank accounts.

At the same time, the FCS has three features likely to lead to two economic costs.

First, the FCS does not impose an ex ante premium on ADIs for the insurance cover that is provided. In that sense, the cover is “free” to ADIs. Free insurance for ADIs, backed by the government, can distort the choice of consumers between investing in ADI versus non-ADI financial institutions. The IMF (2012) has recommended that Australia partly address this distortion by introducing an ex ante premium on the insured deposits of ADIs, in line with the principle of user pays.

Second, the FCS reduces the normal market pressure from potential depositors for banks to be prudent in their lending. If depositors are protected from bank failure by deposit insurance, they are likely to be less concerned about the prudence of lending policies when choosing a bank. This “moral hazard” problem may lead to excessively risky lending by banks, adding to the risk of bank failures. This problem could be addressed by following the USA, Canada, and the IMF recommendation to Australia, by calibrating insurance premiums to the risk of each bank. Excessively risky lending would then be discouraged by the prospect of a higher insurance premium.

The scope of the insurance cover provided by the FCS is broader than in most other jurisdictions, apart from the USA. The insured value is capped at \$250,000, whereas it is capped at around \$100,000 in most other countries with deposit insurance. Further, the insured

cap is provided for each bank used by an account holder. This wide coverage may exacerbate the costs of the scheme.

The Financial System Inquiry (FSI) is currently assessing the FCS as part of a wider examination of how the financial system could be positioned to best meet Australia's evolving needs and support Australia's economic growth. In its Interim Report of July 2014, the FSI states that the Inquiry would value views on the costs and benefits of the following policy options for the FCS: "Modify the FCS, possibly including simplification, lowering the insured threshold or introducing an ex ante fee" (Financial System Inquiry, 2014, p. 3-18).

This report, which was commissioned by Challenger Limited (Challenger), responds to the Inquiry's invitation. Specifically, it uses economic modelling to estimate the costs and benefits to Australia of:

- a) lowering the insured threshold, and applying it per account holder, rather than per account holder per ADI;
- b) introducing an ex ante fee: this applies the user pays principle by charging ADIs a risk-calibrated premium for the insurance cover provided by the FCS; and
- c) abolishing the FCS: this is to test whether the costs of the FCS in its present form are covered by its benefits.

The economic impacts of these policy options are assessed using the Independent Computable General Equilibrium (CGE) model. For this purpose, the Independent CGE model has been extended so that it distinguishes the ADIs as a separate sector, further disaggregates the remainder of the financial sector and takes fuller account of the potential for substitution by consumers between the services provided by ADIs and the other subsectors of the finance industry. These extensions, which are not found in other CGE models of Australia, are fundamental if a CGE model is to provide useful insights into the economic impacts of FCS policy options.

The early sections of this report describe its economic approach. Section two reviews the costs benefits and costs of the FCS against the background of the reform options identified by the FSI Interim Report. Section three provides an overview of the model used to simulate the policy scenarios, the Extended Independent CGE model. It describes the model extensions for

this report, the general features of the model, and the model's limitations in analysing reforms to the FCS. Section four sets out the specification of each scenario and its assumptions. These scenarios aim to respond to the invitation in the Interim Report of the FSI for analysis of fees and thresholds.

The remaining sections of the report present the simulated economic impacts of each scenario. Section five models lowering the insured threshold, through both reducing the insured amount and applying it per account holder. Section six models introducing ADI premiums on a user pays basis in isolation as well as in conjunction with lowering the insured threshold. Section seven models abolition of the FCS.

Two Appendices are included to provide more detailed information. Appendix A provides further information on the Independent Extended CGE model, while Appendix B provides estimates of the economic impacts at a finer level of detail.

While all care, skill and consideration has been used in the preparation of this report, the findings refer to the terms of reference of Challenger and are designed to be used only for the specific purpose set out below. If you believe that your terms of reference are different from those set out below, or you wish to use this report or information contained within it for another purpose, please contact us.

The specific purpose of this report is to provide Challenger with estimates of the economic impacts of policy options to reform the Financial Claims Scheme.

The findings in this report are subject to unavoidable statistical variation. While all care has been taken to ensure that the statistical variation is kept to a minimum, care should be taken whenever using this information. This report only takes into account information available to Independent Economics up to the date of this report and so its findings may be affected by new information. The information in this report does not represent advice, whether express or inferred, as to the performance of any investment. Should you require clarification of any material, please contact us.

## 2 Review of the FCS

The Financial Claims Scheme (FCS) was introduced as part of the Government's response to the Global Financial Crisis (GFC). In its present form, it provides a government guarantee of retail deposits held at Authorised Deposit-taking Institutions (ADIs) up to the value of \$250,000 per account holder per ADI. Like other bank deposit insurance schemes around the world, it has two main aims. "The primary purpose of a deposit insurance scheme is to minimise, if not entirely eliminate, the likelihood of bank runs" (Barth, Lee and Phumiwasana, 2013). It does this by providing a guarantee that the insured deposits are safe. "A secondary purpose is to protect small depositors from losses" (Barth et al, 2013). Small depositors may be less able to withstand losses and may be less likely to understand the risk of losses when making deposits.

In assessing potential reforms to the FCS, the potential benefits and costs of the FCS and alternative policies need to be weighed up. These are now discussed.

### 2.1 Bank runs and insurance

Bank runs are costly. When enough depositors believe that a bank is no longer safe and attempt to withdraw their money, a bank will fail because most of its assets are illiquid. Thus, the bank failure becomes a self-fulfilling prophecy. A bank may attempt to avoid failing by suspending convertibility of deposits into cash or trying to call in loans. In each case, the bank run will disrupt banks in playing either or both of their main roles of acting as intermediaries between borrowers and lenders and generating liquidity for depositors. Consequently, the banking system loses productivity and there may be general economic disruption.

Bank runs also create inequities. Depositors who withdraw their funds early enough may not incur any loss, whereas other depositors may lose some or all of their money once the bank fails.

Bank deposit insurance, of which the FCS is an example, means that insured depositors can receive all of their money back when a bank fails. This reduces the disruption to banking services and addresses the inequities from bank failures. Diamond and Dyvbig (1983) pointed out that bank deposit insurance can make bank runs less likely. If insurance makes depositors believe that their money is safe, they are less likely to join a run so the risk of bank failure is

reduced. Thus, bank deposit insurance may increase the productivity of banking services both by making bank failures less likely and, when they do occur, less disruptive.

This *productivity benefit from insurance* is factored into the modelling. This appears reasonable as the FCS, alongside other policies, did appear to play a role in stabilising the Australian banking system during the GFC.

## 2.2 Allocative Inefficiency

While the FCS is likely to have a productivity benefit for banking services, it also has costs. One of these costs arises because the FCS does not impose an ex ante premium on ADIs for the insurance cover that is provided. In that sense, the insurance is “free”. In the event of a bank failure, surviving ADIs may be levied to provide ex poste funding of the scheme, but it is unclear whether this would occur in practice.

The availability of “free” insurance from ADIs can distort the choice of consumers between investing in ADI versus non-ADI financial institutions in favour of ADIs. This non-level playing field may lead to allocative inefficiency, with the ADI sector oversized and the rest of the financial sector undersized.

This is consistent with the shift to insured deposits that was observed during the GFC. In particular, the Australian Centre for Financial Studies (2013) presents strong, detailed evidence that the FCS has caused allocative inefficiency by inducing households to shift funds from non-ADIs, such as finance companies and cash management trusts, to ADIs.

The modelling allows for this *allocative inefficiency from free insurance*.

This distortion could be partly addressed by following most other countries with deposit insurance schemes by introducing an ex ante premium on the insured deposits of ADIs, in line with the principle of user pays. This also means a pool of funding would be accumulated to help fund future insurance payouts. Overseas experience, particularly during the GFC, shows that such funding pools may be emptied at times of financial crisis and governments then generally step in with backup funding. Thus, in practice the introduction of premiums usually reduces rather than eliminates government support of bank deposit insurance. This will also

be true for the associated allocative inefficiency from favouring bank over non-bank financial institutions.

## 2.3 Moral Hazard

Insurance can create a “moral hazard” problem: by reducing the costs of risky behaviour, insurance may increase its prevalence. Because they are protected from bank failure, insured depositors choosing a bank may be less focussed on whether a bank lends prudently than uninsured depositors. This relaxation of market discipline from depositors may lead to excessively risky lending, making bank failure more likely. Thus, while insurance is expected to reduce the risk of bank failures arising from self-fulfilling prophecies of depositors, it may increase the risk of bank failures from risky lending by banks. Thus, Barth et al. (2013) conclude that: “while instilling confidence in depositors that their funds are always safe, so as to prevent bank runs, deposit insurance simultaneously increases the likelihood of another serious banking problem in the form of moral hazard” (Barth et al., 2013).

Thus the productivity benefit from insurance may be partly offset by a *productivity loss from moral hazard*. This is taken into account in the modelling.

Of course prudential regulation and supervision do aim to safeguard against excessively risky lending by banks. However, this task becomes more challenging when moral hazard from bank deposit insurance is introduced. Thus, “there is widespread agreement that regulation and supervision are particularly important to prevent banking problems once countries have established a deposit insurance scheme” (Barth et al., 2013).

The problem of moral hazard from an insurance scheme can also be reduced through careful design of the scheme. As Barth et al. (2013) observe: “it is important for government to realise when designing a scheme, one must take into account the effect the various features will have on both depositor confidence and moral hazard”.

The existing design features of the FCS show more of a focus on depositor confidence than moral hazard. This is understandable in that the FCS was introduced in response to a potential crisis in depositor confidence from the GFC. However, the FSI provides an opportunity to review the FCS and recommend a more balanced scheme.

Moral hazard can be addressed directly if insurers are able to observe risky behaviour and calibrate insurance premiums to the risks being taken. Other countries, including the USA, since 1993 (Ellis, 2013), and Canada (CDIC, 2014), apply insurance premiums and calibrate their level to the level of risk of each bank.

Excessively risky lending may then be discouraged by the prospect of a higher insurance premium. “The advantage of risk-based premiums is that they potentially can be used to induce banks to avoid engaging in excessively risky activities.” (Barth et al., 2013).

As noted above, the FCS does not impose an ex ante premium on ADIs. In the event of a bank failure, surviving ADIs may be levied to provide ex poste funding of the scheme, but it seems unlikely that applying levies to ADIs that acted more prudently and survive a crisis provides an incentive for prudent lending. Therefore, one way of reducing the moral hazard from the FCS would be to introduce ex ante premiums, which would also address the competitive neutrality problem, and make those premiums risk-rated. As discussed below, another way to reduce moral hazard would be to reduce the coverage of the FCS.

## 2.4 Adverse Selection

In most countries it is compulsory for all banks to join the bank deposit insurance scheme, but in some countries it is voluntary. Voluntary membership leads to adverse selection. A voluntary scheme attracts risky/weak banks, who need insurance to attract depositors, but not safe/strong banks who believe they can attract depositors without offering insurance. Barth et al. (2013) note that “the entire scheme may simply become a government bailout for weak banks”.

In Australia, participation in the FCS is compulsory. The Interim Report of the FSI has not called this positive design feature into question and so it is not discussed further in this report.

## 2.5 Insurance Pool Costs

While risk-rated, ex ante insurance premiums offer the prospect of addressing the competitive non-neutrality and moral hazard problems, they also have a cost. They use premiums to accumulate a pool of funds to finance future payouts to depositors of failed banks. For example, the Canadian scheme aims to accumulate a pool valued at the equivalent of 1 per cent

of insured deposits (CDIC, 2014), while the US scheme has a target of 2 per cent (Ellis, 2013) although both pools currently fall short of their targets. These pools have an opportunity cost as they are a potential source of investible funds.

The modelling allows for this *opportunity cost of the insurance pool*. Of course an insurance pool has the advantage of providing a source of funding for future insurance payouts. However, this benefit is difficult to quantify and Diamond (2007) argues that the government, with its taxing power, might in any case be needed to help provide the large-scale funding needed in a major financial crisis.

## 2.6 Coverage

The scope of the FCS in its present form is broader than for bank deposit insurance schemes in most other jurisdictions, apart from the USA, which has similar scheme coverage. This broad scope has three dimensions.

First, the insured value is capped at \$250,000 under the FCS, whereas it is capped at the equivalent of around AUD 100,000 in most other high-income countries with deposit insurance (Demirgüç-Kunt, Kane and Laeven, 2014). As Barth et al. (2013) note: “the higher the limit the more protection is offered to individual depositors, but the higher the limit the greater the moral hazard. Thus, the focus of the FCS on moral hazard could be improved by reducing the existing limit so that it is more in line with other countries.

This improvement could be substantial. Account holders with larger deposits of over \$100,000 may be more focussed on the prudence of a bank’s lending policies than smaller depositors. Therefore limiting the coverage of their insurance may substantially reduce the moral hazard for bank lending that arises from a bank deposit insurance scheme. Thus, Thomson (2001) reaches the conclusion that high coverage limits are unlikely to “enhance the stability and efficiency of the financial system”.

For the same reason, it may be fair to reduce the coverage limit. If account holders with deposits of over \$100,000 are generally aware of the small risk of loss involved with bank deposits, it is more reasonable to expose them to part of that risk by limiting their insurance cover.

Small depositors would continue to be protected with deposit insurance. As Thomson (2001) notes, small depositors may be “rationally ignorant” because the benefits to them of learning about the riskiness of different banks does not justify the cost. If US data is any guide, a very high percentage of depositors have account balances of well below \$100,000 and so would continue to be insured under this lower threshold.

Second, the insured cap under the FCS is provided for each bank used by an account holder. Providing the insured cap at each bank used by an account holder provides an incentive for account holders to open accounts at more banks to obtain more insurance cover. The cost to account holders of opening additional accounts in response to regulation represents a deadweight loss to the economy (Shy, Stenbacka and Yankov, 2014).

In the USA, a financial product has been developed known as “reciprocal brokered deposits” which can automate this process (Li and Shaffer, 2014). For example, four account holders might have originally each had one account of \$1,000,000 at banks A, B, C and D respectively. Only the first \$250,000 of each account would have been covered under the insurance cap. Reciprocal brokered deposits allow the four banks to swap account balances so that the four account holders now each have four accounts of \$250,000, spread across the four banks. Their deposits are now fully insured because all accounts are now within the \$250,000 insured cap, and the total deposit balances of each individual and each bank are unchanged at \$1,000,000. The insurance loophole exposed by this practice is causing concern in the USA.

The deposit-splitting loophole in the FCS could be closed by applying the insurance cap per account holder instead of per account holder per ADI. In the preceding example, this would mean the individuals would each have insurance cover of \$250,000, with the remaining \$750,000 uninsured, irrespective of how much they sub-divided their money between banks. This change would reduce the moral hazard costs of the FCS.

Third, the FCS has no coinsurance. Countries with coinsurance require that depositors bear up to 10 per cent of losses. Barth et al. (2013) find that in practice this relatively small percentage of coinsurance is enough to “help to curb moral hazard”. Introducing coinsurance would be another option for reducing the “moral hazard” from the design of the FCS. However, the Interim Report of the FSI does not specifically canvas coinsurance as a reform so it is not discussed further here.

Reducing the broad coverage of the FCS in any or all of the three areas discussed above would help to improve the focus of the scheme on containing moral hazard for bank lending. In this area, the FCS is currently well below world best practice.

Reductions in coverage would also reduce the allocative inefficiencies arising from the FCS. Large account holders may be better informed and hence more price-sensitive than other account holders. This would mean that a substantial part of the allocative inefficiencies under the FCS can be attributed to them, so reducing the schemes coverage of them may substantially reduce these inefficiencies. This could be done by reducing the insurance limit and/or applying the insurance cap per account holder instead of per account holder per ADI.

## 3 The Independent Extended CGE model and the FCS

This report simulates the economic impacts of various reform options for the FCS using the Independent Extended Computable General Equilibrium (CGE) model. This section provides an overview of the model, while the policy scenarios that are simulated are set out in section 4.

### 3.1 Model Extensions

For this report, the Independent CGE model has been extended to make it more suitable for assessing FCS policy options. This involved developing the level of detail within the financial sector, as well as more comprehensively modelling interactions within the sector.

The original Independent CGE model, like comparable CGE models of Australia, followed the standard ABS input-output tables in distinguishing the three industries within the financial sector that are shown in Table 3.1.

*Table 3.1 Broad Finance Sector Industries*

Code	Broad Industry
6201	Finance
6301	Insurance and Superannuation Funds
6401	Auxiliary Finance and Insurance Services

These broad industries are not suitable for modelling the FCS because it applies to ADIs, which are hidden within industry 6201. The first step of the model extension was to disaggregate the broad finance industries so that ADIs are separately identified, as shown in Table 3.2. ADIs are now identified by industry 6201A, which is banks, building societies and credit unions.

This extended detail makes it feasible to model the FCS and potential FCS reforms by changing inputs to the ADI industry, including its total factor productivity and subsidy rates.

*Table 3.2 Finance Sector Industries with Extended Detail*

Code	Detailed Industry
6201A	Banks, building societies, credit unions
6201B	Other Depository Financial Intermediation
6201C	Non-Depository Financing
6201D	Financial Asset Investing
6301A	Life Insurance
6301B	Health Insurance
6301C	General Insurance
6301D	Superannuation Funds
6301M	Marine insurance provision (Margin)
6401A	Financial Asset Broking Services
6401B	Other Auxiliary Finance and Investment Services
6401C	Auxiliary Insurance Services

In extending the level of detail in the finance industry, the opportunity was taken to extend the level of detail in all industries. As a result, the number of industries has been extended from 114 in the original model to 284 in the extended model.

Having extended the detail within the financial sector, the next issue was to further develop the modelling of consumer choices for financial services to fully capture the scope for consumers to shift between using ADI financial services and non-ADI financial services.

This involved developing the treatment of consumer choices to a 2-tier structure, compared with the 1-tier structure found in the original model and other models. Consumers choose between 19 broad categories of consumption in the top tier, including financial services, and then choose within each broad category, including within financial services. This allows the model to capture the high degree of substitutability between different types of financial services. This is particularly important in estimating the allocative inefficiency cost from providing consumers with “free” bank deposit insurance.

The above extensions are fundamental if a CGE model is to provide useful insights into the economic impacts of FCS policy options.

### 3.2 Model Features

The main features of the Independent Extended Computable General Equilibrium (CGE) model of the Australian economy are described here. These include some general features that are common to many CGE models, as well as some more distinctive features.

The Independent Extended CGE Model makes a number of general assumptions that are common in CGE models with its long-term time horizon.

Because it is a long-term model, its results refer to the ongoing effects on the economy after it has fully adjusted to economic shocks. In keeping with this, all markets are assumed to have reached equilibrium. This includes key markets such as the labour market, where the real wage for each type of labour adjusts so that demand from industries is equal to supply from households.

The behaviour of households and government is consistent with the inter-temporal budget constraints that they face so that the model outcomes are sustainable.

Further, households and firms engage in optimising behaviour. This means that households maximise their utility subject to their budget constraint while a representative firm in each industry maximises profit subject to its production technology.

The long-term time horizon of the model is fitting for policy analysis. Economic policies should be judged against their lasting effects on the economy, not just their effects in the first one or two years.

Some notable features which set the model apart from other models of the Australian economy are as follows.

- As noted above, following the latest model development work, the model now distinguishes 284 industries, compared to 114 industries for comparable models that rely on the standard ABS input-output tables.

- The model's baseline scenario is designed to represent a normalised version of 2012/13 Australian economy, using the latest information available. It takes as its starting point the 2009/10 ABS Input-Output (IO) tables, which are the latest available.
- The model incorporates refined modelling of production in each industry. This includes nine types of produced capital, three fixed factors to capture economic rents, and 51 different occupations for labour.
- The model provides a valid measure of changes in consumer welfare or living standards based on the equivalent variation, so that policy changes can be correctly evaluated in terms of the public interest.
- The model includes refined modelling of consumer demand based on its new 2-tier approach that was described above. This 2-tier structure takes into account that there may be more scope for households to switch spending within broad categories than between broad categories.
- The model has a highly detailed treatment of business taxation, with a focus on important features of the current Australian system as well as tax designs that have been proposed around the world. This treatment was developed while working with the Australian Treasury to use the model to simulate options for business tax reform for the Business Tax Working Group.

### **3.3 Limitations of the FCS modelling**

Even with the extensions to the model, it captures some economic impacts of bank deposit insurance more robustly than others.

On the one hand, with the extensions to the modelling of consumer choice, the model is well designed to capture the allocative inefficiencies associated with the “free” provision of bank deposit insurance. Similarly, the opportunity cost of a pool of funding quarantined for insurance payouts has also been modelled with a good degree of accuracy.

On the other hand, the modelling of the benefits from avoiding damaging bank runs relies on making a broad judgment about the magnitude of this benefit outside of the model, and then introducing the estimated benefit as a gain in the total factor productivity of the ADI sector. A

similar approach was followed in modelling the costs of moral hazard. The adoption of this broad approach reflects both the complexities and uncertainties involved as well as the inherent limitations in dealing with issues of risk within the framework of a deterministic CGE model.

While it is considered that the judgements that have been made are reasonable, it is clear that the results provide a broad (rather than a precise) guide to the magnitudes of the economic impacts. This should be taken into account when using the results.

Appendix A provides a more detailed overview of the model. More detailed documentation is available at [www.independenteconomics.com.au](http://www.independenteconomics.com.au)

## 4 The FCS scenarios

### 4.1 Introduction

The policy scenarios in this report aim to identify the economic impacts of alternative reforms to the FCS. Some of these scenarios focus on the areas in which the Interim Report of the FSI invited submissions on the costs and benefits of incremental change. Other scenarios are designed to assess the costs and benefits of the FCS as a whole, and of the potential economic “prize” from removing its costs while retaining its benefits.

Six policy scenarios are simulated. The main assumptions of each scenario, which are summarised in Table 2.1, are now discussed in turn.

*Table 2.1 Design of Six Policy Scenarios*

Features	FCS (baseline)	\$100k limit	\$50k limit	apply premium	limit + premium	abolish FCS	costless scheme
coverage limit	\$250k	\$100k	\$50k	\$250k	\$50k	na	na
separate limit per ADI	yes	no	no	yes	yes	na	na
premium	no	no	no	yes, risk- based	yes, risk- based	no	no
severe bank runs	no	no	no	no	no	yes	no
moral hazard	yes	reduced	further reduced	no	no	no	no
allocative inefficiency	yes	reduced	further reduced	further reduced	largest reduction	no	no
insurance pool cost	no	no	no	yes	no	no	no

### 4.2 Baseline Scenario

The *baseline scenario* refers to the existing policy of the FCS in its current form. Thus, the limit of insurance cover is set at \$250,000 per account holder and applies separately for each ADI at which the account holder banks. Banks are not charged a premium for this cover. The FCS is assumed to be effective in preventing bank runs. This is at the cost of exposing bank lending to moral hazard, because depositors know that their deposits are protected by insurance and so do not apply market discipline to banks to avoid overly risky lending. Because the insurance of bank deposits is “free”, it also leads to an allocative inefficiency in which banks

are favoured over non-bank financial institutions. The baseline scenario provides the point of comparison for the other scenarios.

### 4.3 Lowering the insured amount

The *\$100k scenario* takes up the invitation of the Interim Report of the FSI to present views on the costs and benefits of “lowering the insured threshold” (FSI, 2014). It reduces the coverage limit from \$250k to \$100k and applies it to each account holder once, after aggregating holdings across ADIs. While this reduces the coverage of the scheme, the reduced coverage is more in line with international practice and is assumed to be sufficient to continue to prevent bank runs that are severe enough to lead to bank failures. At the same time, the reduced coverage of the scheme reduces the moral hazard and allocative inefficiency costs that are associated with the FCS.

The *\$50k scenario* reduces the coverage limit by more, from \$250k to \$50k and, like the preceding scenario, applies it to each account holder once. This further reduced coverage is assumed to be sufficient to prevent the severe bank runs that lead to bank failures. Compared to the \$100k scenario, the \$50k scenario involves a greater reduction in the coverage of the scheme and therefore a greater reduction in its moral hazard and allocative inefficiency costs.

Reductions in the coverage limit to below \$50k were not analysed. This is because it is considered this would call into question the assumption that the coverage of the scheme is wide enough to be effective in preventing bank failures from severe bank runs.

### 4.4 Introducing insurance premiums

The *apply premium* scenario takes up the invitation of the Interim Report of the FSI to present views on the costs and benefits of “introducing an ex ante fee” (FSI, 2014). The premium is assumed to be calibrated to the risk of each bank.

This policy scenario is in keeping with the IMF (2012) recommendations for the FCS. “This arrangement (of ex poste funding of the FCS) falls short of international best practices that banks should bear the cost of their own failures. The authorities should re-evaluate the merits of ex-ante funding for the FCS with a view toward converting it to an ex-ante funded scheme... with an objective to implement risk-based assessments over time”.

With risk-rated premiums, this scenario is assumed to be effective in eliminating the moral hazard in bank lending that arises under a flat rate or free system of premiums. This is a simplifying assumption in that it is challenging for insurers to accurately risk assess individual banks. However, the FCS is administered by APRA which, as the body responsible for prudential regulation and supervision, is uniquely well placed to risk assess banks. This policy scenario assumes the same insurance coverage as the existing FCS, and so it is assumed to be equally effective in preventing severe bank runs leading to bank failures.

Because the introduction of premiums applies the user pays principle to bank deposit insurance, it partly restores a level playing field between banks and non-bank financial institutions. However, some government favouritism to banks would remain, because government would continue to back the scheme and step in with top up funding if needed. This government backing is not be available to non-ADIs if they were to set up a similar insurance scheme. Thus, premiums are likely to partly, but not fully, eliminate the allocative inefficiency from free insurance under the FCS, because government backing would remain.

In estimating the subsidy to ADIs implied by the FCS, it is assumed that the average premium would be 10 basis points. This is similar to the weighted average of the premium targets set for Canada by the CDIC (2014). It also matches the premium rate used in calculations by the Australian Treasury (2013) for a “small financial stability fund”. It is also assumed that government backing of the scheme has a similar value. That is, it is assumed that, under the FCS, “free” insurance has a value of 10 basis points and government backing of the scheme in a crisis has a further value of 10 basis points. Introduction of a premium eliminates the first subsidy but not the second.

At the same time, the development of an insurance pool of funds also has the opportunity cost of quarantining investible funds. In assessing this cost, it is assumed that the target for the pool is the equivalent of one per cent of insured deposits. Similar to the premium rate assumption, this matches the Canadian target (CDIC, 2014) as well as the target under the “small financial stability fund” outlined by the Australian Treasury (2013).

The *limit + premium* scenario combines the two ideas for improving the FCS i.e. it combines reducing the coverage limit from \$250k to \$50k with introducing risk-rated premiums.

## 4.5 Abolishing the FCS

While the scenarios above examine incremental reforms to the FCS, the remaining scenarios assess the FCS more broadly.

The *abolish FCS* scenario simulates the abolition of the FCS. This is to assess whether its benefits outweigh its costs i.e. it answers the question of whether introducing the FCS was a policy improvement. The benefit of preventing severe bank runs that lead to bank failures is lost. At the same time, its costs of moral hazard and allocative inefficiency are saved.

The *costless scheme* scenario supposes that there is some way of maintaining the benefits of deposit insurance without incurring any of its costs. That is, the benefit of preventing severe bank runs that lead to bank failures is somehow achieved but there are no costs, including no moral hazard, allocative inefficiency or insurance pool costs. Thus, this scenario abolishes the costs, but not the benefits, of the FCS. It is designed to identify the costs of the FCS. Hence, it also shows the potential economic “prize” from reforming the FCS, while acknowledging that the full prize is unlikely to be obtainable.

## 4.6 Comparing scenario outcomes

The results from each scenario are discussed in the following three sections, which are sections 5-7. These results refer to long-run outcomes, after the economy has fully adjusted to each policy change. The results are expressed as deviations from the baseline scenario, which includes the FCS in its present form. They therefore show the incremental economic impacts of alternative reforms to the FCS. Four comparison charts are provided below as Charts 4.1 to 4.4. The results in these charts are explained when each scenario is discussed in the following three sections.

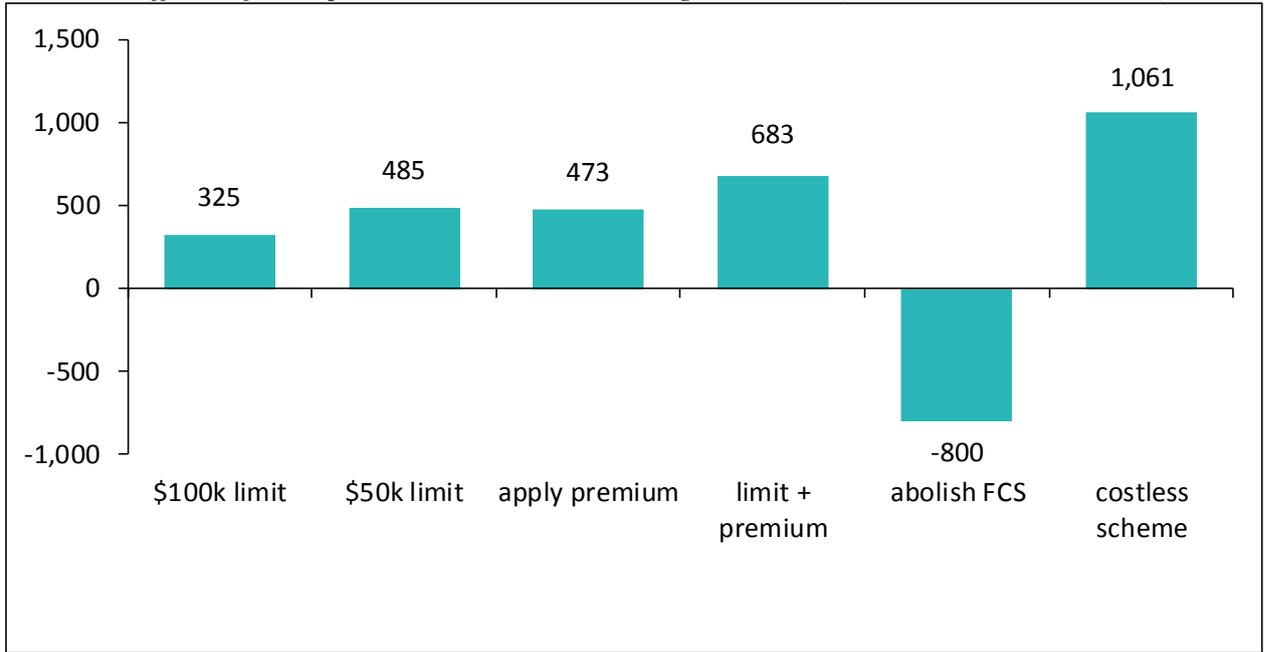
Before considering each scenario separately, the main policy implications can be drawn from Chart 4.1. It shows the impact of each scenario on consumer living standards in 2012/13 terms.

The “abolish FCS” scenario indicates that the FCS should not be abolished, as that would entail a loss in living standards on an annual basis of \$800 million. This indicates that the scheme has a net benefit of \$800 million, so its benefits outweigh its costs. The annual costs of the FCS, including the moral hazard and allocative inefficiency entailed in providing free,

government-backed insurance, are \$1,061 million. This estimate is obtained from the final scenario, which estimates the gain from moving to a hypothetical costless scheme. The gross benefit of the FCS is therefore estimated at \$1,861, which is calculated as the net benefit plus the costs.

The other scenarios indicate that, while the scheme should not be abolished, it should be reformed. Broadly similar gains are available from either reducing the coverage to be in line with international practice (up to \$485 million), or from introducing risk-based premiums (\$473 million). Both reforms could be undertaken, giving a larger gain of \$683 million. The gains from the two policies are not fully additive ( $\$485\text{m} + \$473\text{m} < \$683\text{m}$ ) because there is some overlap in the sources of the gains from the two reforms.

Chart 4.1 Effects of FCS policies on Australian living standards (\$million, 2012-13 terms)



Source: Independent Extended CGE model

Chart 4.2 Effects of FCS policies on real GDP (per cent)



Source: Independent Extended CGE model

Chart 4.3 Effects of FCS policies on ADI real value added  
(per cent)

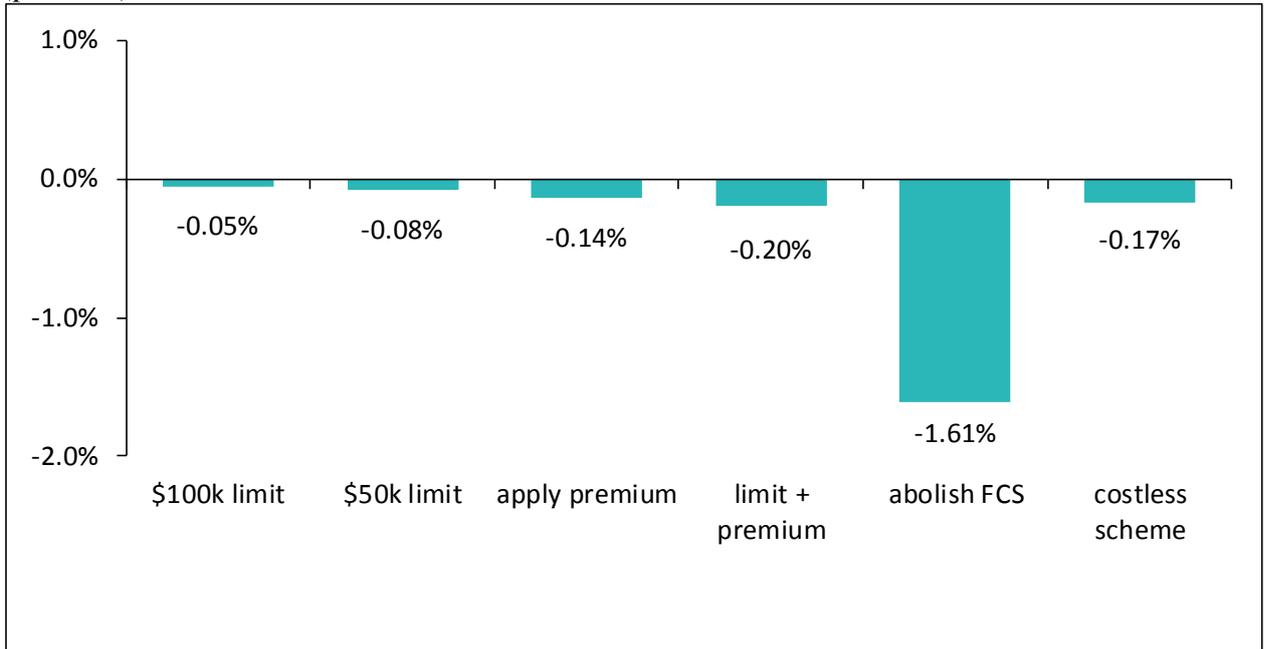
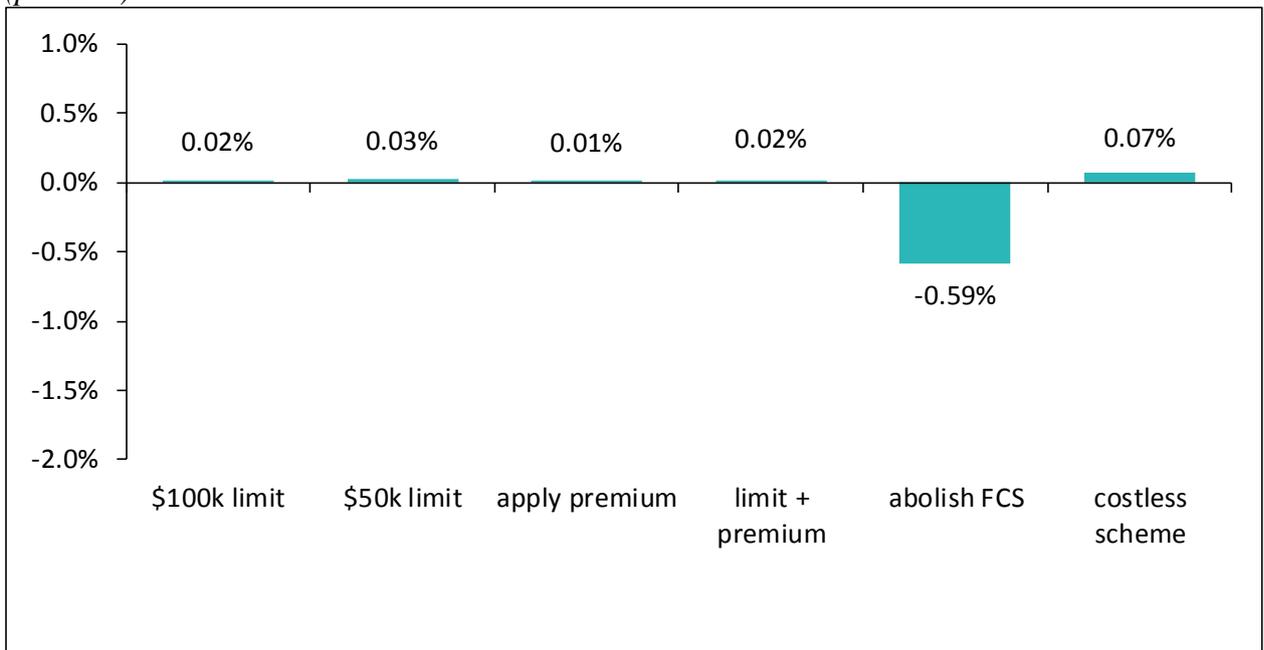


Chart 4.4 Effects of FCS policies on finance & insurance real value added  
(per cent)



## 5 Lowering the insured amount

Reforming the FCS by lowering the insured threshold and closing the account splitting loophole reduces the coverage of the FCS. It therefore lowers its costs, including moral hazard and allocative inefficiency costs of the FCS. This generates a sustained gain in consumer living standards on an annual basis of \$325 million under a reduction in the threshold to \$100k, or \$485 million under a larger reduction in the threshold to \$50k (Chart 4.1).

Similarly, reducing the insured threshold provides an ongoing boost to the level of GDP. This boost is 0.04 per cent or 0.05 per cent, depending on the extent of the reduction in the threshold (Chart 4.2).

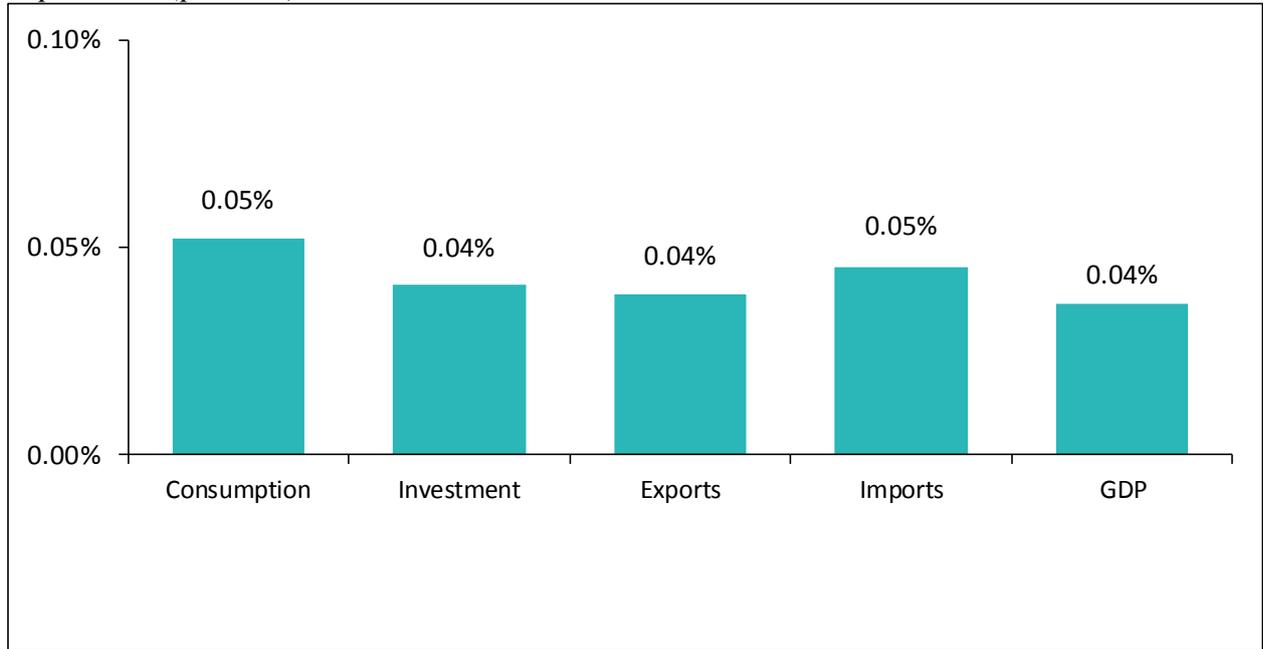
In both scenarios, activity in the ADI sector itself, as measured by real value added, is slightly lower (Chart 4.3). This is the net result of significant effects operating in both directions. On the one hand it gains a boost in productivity from the reduction in moral hazard and the associated excessively risky lending. On the other hand, it loses because reduced coverage of the FCS means that ADIs have less free cover to provide to consumers, prompting a small shift in consumer demand away from ADIs. However, this development reflects a partial unwinding of the allocative inefficiency from free deposit insurance, and so is a positive development for living standards and the economy as a whole.

For example, the shift in consumer demand away from ADIs benefits non-ADI financial institutions. This contributes to slightly higher real value added for the financial sector as a whole (Chart 4.4).

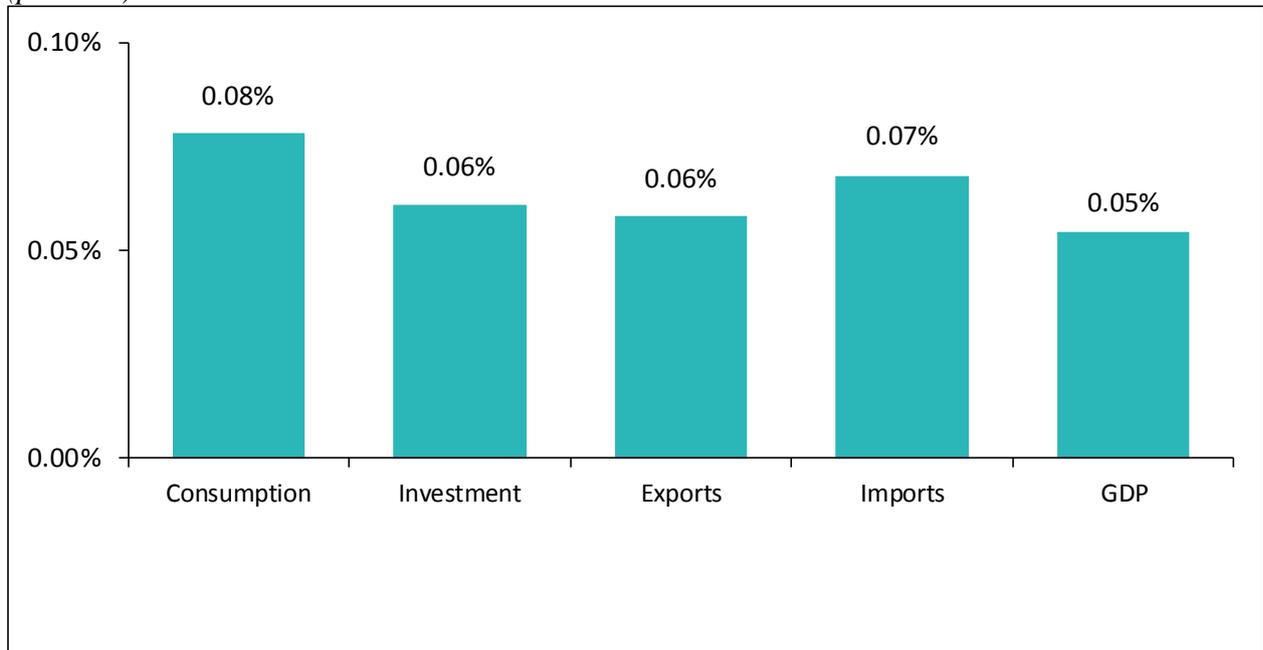
There are also widespread gains in GDP by expenditure. Charts 5.1 and 5.2 shows these gains when the threshold is reduced to \$100k and \$50 respectively. All components of expenditure gain by around 0.04 or 0.05 per cent respectively, in line with the gain in GDP as a whole.

As noted earlier, reductions in the coverage limit to below \$50k were not analysed. This is because it is considered this may call into question the assumption that the coverage of the scheme is wide enough to be effective in preventing bank failures from severe bank runs.

*Chart 5.1 Effects of Reducing Threshold to \$100k per account holder on real GDP by Expenditure (per cent)*



*Chart 5.2 Effects of Reducing Threshold to \$50k per account holder on real GDP by Expenditure (per cent)*



## 6 Introducing insurance premiums

Reforming the FCS by introducing insurance premiums and making them risk-rated has a number of impacts.

It is assumed that risk rating removes the moral hazard problem of excessively risky bank lending associated with bank deposit insurance. In principle, this would be the case if the premiums are precisely calibrated to the riskiness of each bank, because the prospect of higher premiums would then remove the incentive to engage in excessively risky lending. In practice, because of the complexities, the insurer's assessment of the riskiness of each bank will be imperfect. Hence the assumption that moral hazard cost is removed should be viewed as an approximation.

At the same time, developing an insurance pool of funding has an opportunity cost. This partly offsets the saving from removing moral hazard, leaving a small gain in productivity for the ADI sector.

Introducing premiums also reduces, but does not remove, the existing allocative inefficiency resulting from “free”, government-backed insurance. The insurance is no longer free, but it remains government-backed when such backing is not available to non-ADI financial institutions that compete with ADIs.

The reduction in allocative inefficiency combined with the small gain in ADI productivity, results in a significant gain in living standards on an annual basis of \$473 million (Chart 4.1). Similarly, there is a significant gain in GDP of 0.05 per cent (Chart 4.2).

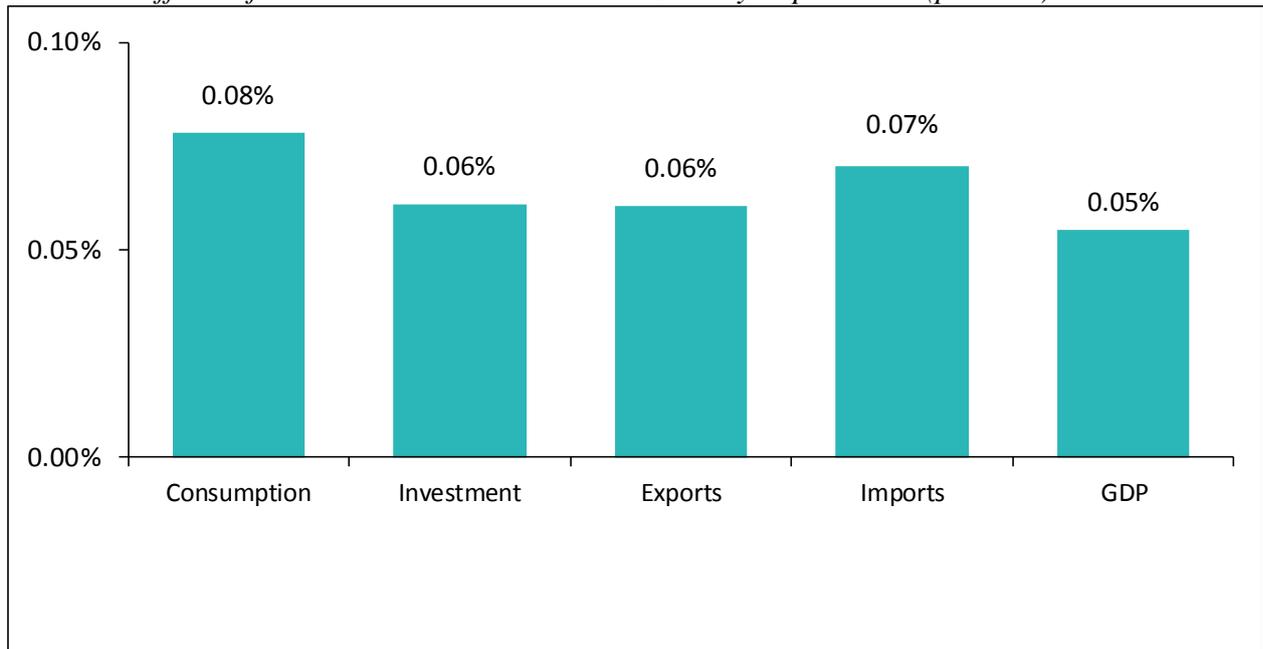
Real value added in the ADI sector is down 0.14 per cent (Chart 4.3). This is because the benefit to the ADI sector of its productivity gain is more than offset by the cost to it of partly restoring a level playing field by requiring ADIs to pay for their deposit insurance. This development causes a shift in consumers from ADI to non-ADI financial institutions. The gain for non-ADIs is sufficient to maintain activity in the finance sector as a whole (Chart 4.4).

The estimated gains in living standards and GDP are very similar for introducing risk-rated premiums or lowering the insured limit to \$50k. These two policies are combined in the *limit + premium* scenario.

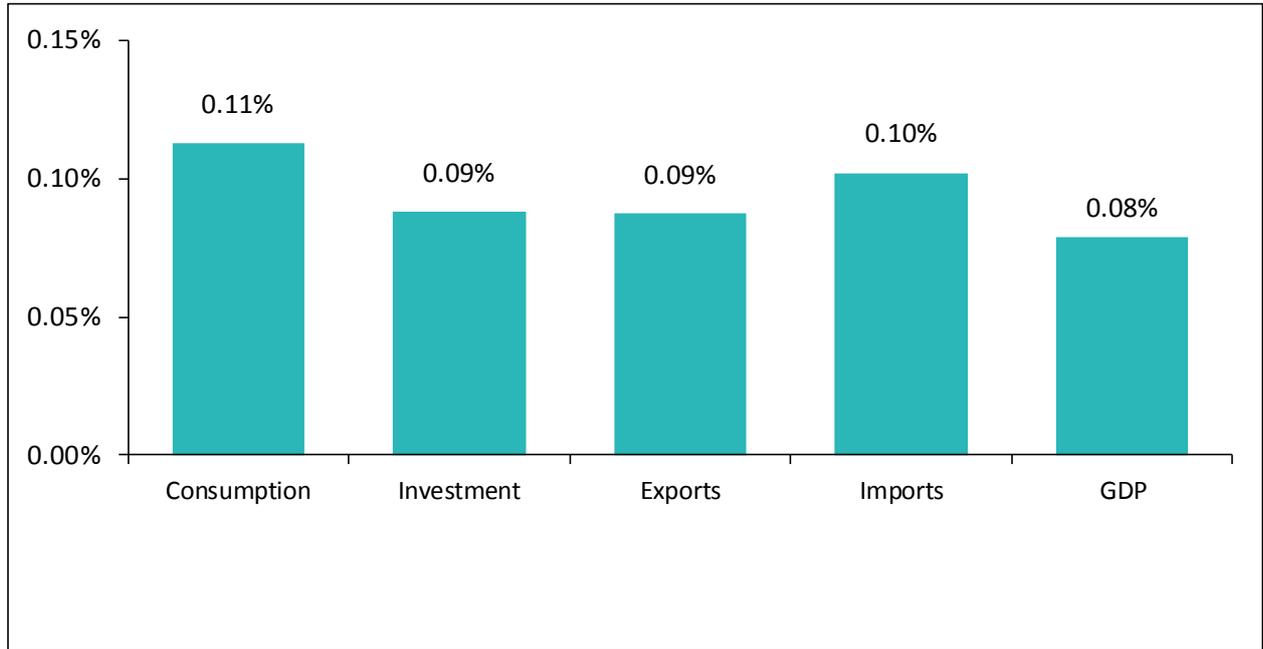
As would be expected, this shows a larger gain in annual living standards of \$683 million. The gains from the two policies are not fully additive (\$485m+\$473m < \$683m) because there is some overlap in the sources of the gains from the two reforms. Similarly, the gain in GDP is boosted to 0.08 per cent, compared to 0.05 per cent from either policy in isolation.

There are also widespread gains in GDP by expenditure. Charts 6.1 and 6.2 respectively show that all components of expenditure gain by around 0.05 per cent in the *premium* scenario and 0.08 per cent in the *limit + premium* scenario, in line with the percentage gains in GDP as a whole.

Chart 6.1 Effects of Risk-rated Premiums on real GDP by Expenditure (per cent)



*Chart 6.2 Effects of Reducing Threshold to \$50k combined with Risk-rated Premiums on real GDP by Expenditure (per cent)*



## 7 Abolishing the FCS

Abolishing the FCS removes both its benefits and costs. Removing the benefit of eliminating severe bank runs is assumed to result in a loss in total factor productivity for the ADI sector of 1.5 per cent. This more than offsets the savings from eliminating the costs of the FCS, including its moral hazard and allocative inefficiency. Hence, abolishing the FCS results in a significant loss in living standards on an annual basis of \$800 million (Chart 4.1).

Similarly, there is a significant loss in GDP of 0.05 per cent (Chart 4.2). These losses suggest that the FCS should be retained rather than abolished. However, the results in sections 5 and 6 indicate that the net benefit from the FCS could be substantially lifted through reform.

Abolishing the FCS would have a substantial negative impact on the ADI sector. There is a loss in its real value added of 1.61 per cent (Chart 4.3). This is the effect, averaged over time, of removing bank insurance. It reflects the disruptions to banking services resulting from severe runs, which are rare in Australia but potentially highly damaging when they do occur. It is also reflected in a loss in real value added for the finance sector as a whole of 0.59 per cent (Chart 4.4).

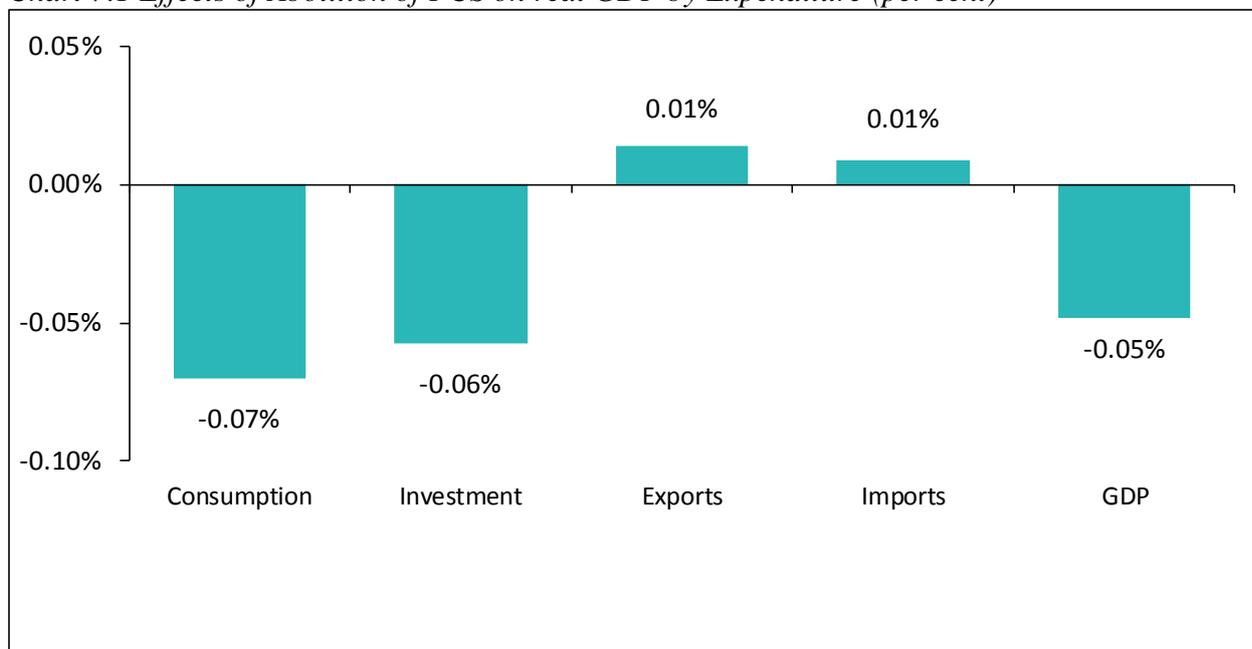
There are also widespread losses in GDP by expenditure. Chart 7.1 shows that all components of expenditure, other than trade volumes, fall by around 0.05 per cent, in line with the loss in GDP as a whole.

The final scenario models a hypothetical costless solution to the problem of the risk of bank failures. It results in a gain in GDP of 0.12 per cent (Chart 4.2) and all components of expenditure gain by a similar percentage (Chart 7.2).

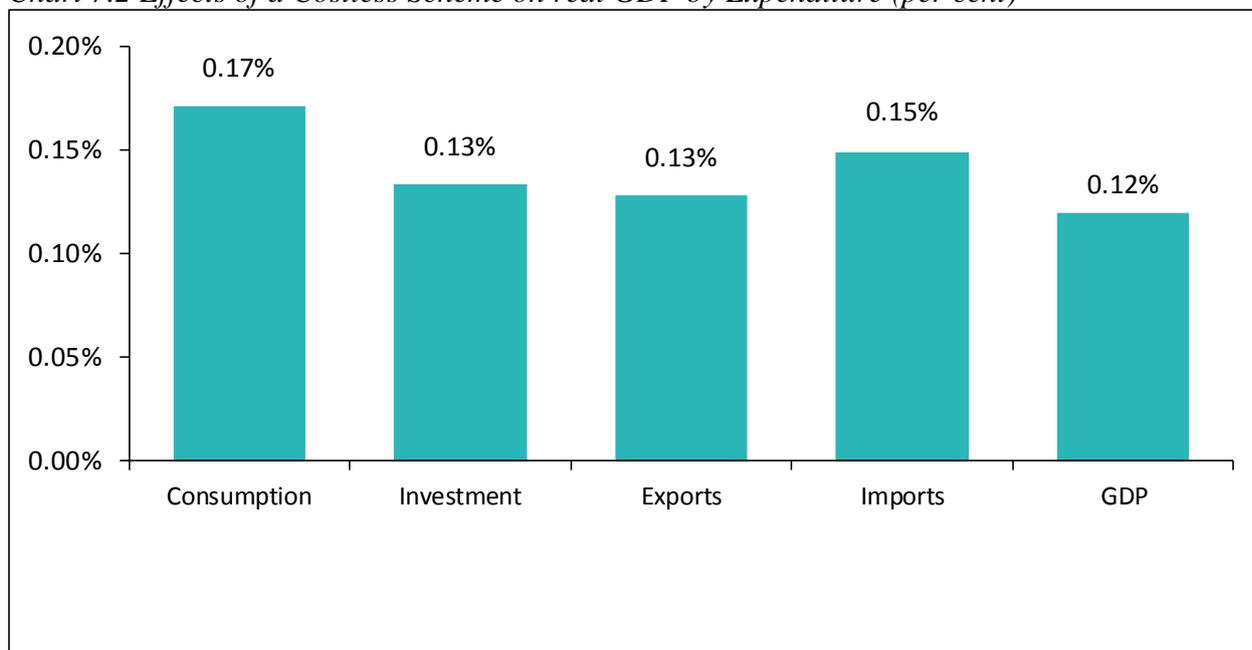
Removing the costs of the FCS while retaining its benefit of eliminating severe bank runs results in a significant gain in living standards on an annual basis of \$1,061 million (Chart 4.1). This can be interpreted as the potential economic “prize” from reforming the FCS, while acknowledging that the full prize is unlikely to be obtainable.

Comparing the living standards results from the final two scenarios also provides a breakdown of the costs and benefits of the FCS on an annual basis. They imply that it provides a benefit of \$1,861 million and a cost of \$800 million, giving a net benefit of \$1,061 million.

*Chart 7.1 Effects of Abolition of FCS on real GDP by Expenditure (per cent)*



*Chart 7.2 Effects of a Costless Scheme on real GDP by Expenditure (per cent)*



Finally, the effects of each scenario on living standards can be compared to derive a breakdown of the costs and benefits of alternative policies. It can be seen that the dual policy of reducing the coverage limit to \$50k per account holder and introducing risk-based premiums lifts the annual net benefit of the FCS from \$0.80 billion to \$1.48 billion. It does this by eliminating the moral hazard cost and most of the allocative inefficiency cost, while introducing the smaller cost of quarantining a pool of funds for payouts to depositors of failed ADIs.

*Table 7.1 Summary of Costs and Benefits for each Scenario (\$bn, 2012/13 terms)*

	FCS (baseline)	\$100k limit	\$50k limit	apply premium	limit + premium	costless scheme
benefit of insurance	1.86	1.86	1.86	1.86	1.86	1.86
moral hazard	0.62	0.43	0.34			
allocative inefficiency	0.44	0.31	0.24	0.22	0.12	
pool of funds				0.37	0.26	
total costs	1.06	0.74	0.58	0.59	0.38	
net benefit	0.80	1.12	1.28	1.27	1.48	1.86

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# Appendix A: The Independent Extended CGE Model

## A.1 Introduction

The Independent Extended CGE Model is Independent Economics' Computable General Equilibrium (CGE) model of the Australian economy, as recently extended. Some notable features which set the Independent CGE model apart from other models of the Australian economy are as follows.

- Following the latest model development work, the model has now been extended to distinguish 284 industries, compared to 114 industries for comparable models that rely on the standard ABS input-output tables. This finer level of detail in the extended model is obtained by using the ABS product details tables to disaggregate industry demand information and broad assumptions to disaggregate industry supply information.
- The model is designed to represent a normalised version of 2012/13 Australian economy, using the latest information available. It takes as its starting point the 2009/10 ABS Input-Output (IO) tables, which are the latest available. These are updated in a simulation of the model that allows for general growth in prices, productivity and labour supply from 2009/10 to 2012/13, includes a long-run assumption for the terms-of-trade, and adjusts investment rates and the trade balance to sustainable levels.
- The model incorporates refined modelling of production in each industry. This includes nine types of produced capital and three fixed factors to capture economic rents. For employment, the model distinguishes 51 different occupations. The model allows for different degrees of substitutability between these factors.
- The model provides a valid measure of changes in consumer welfare or living standards based on the equivalent variation, so that policy changes can be correctly evaluated in terms of the public interest.
- The model includes refined modelling of consumer demand based on a 2-tier approach. In the top tier households allocate their spending across 19 broad categories of consumption, and in the second tier they choose their pattern of consumption within each of these categories. This 2-tier structure takes into account that there may be more scope for households to switch spending within broad categories than between broad categories.
- The model has a highly detailed treatment of business taxation, with a focus on important features of the current Australian system as well as tax designs that have been proposed around the world. It takes into account factors such as: the different tax treatments of debt and equity financing; the complex system of depreciation allowances and tax concessions which differ by industry; franking credits; foreign tax credits; and the potential for international profit shifting.

This Appendix provides an overview of the model. More detailed documentation is available at [www.independenteconomics.com.au](http://www.independenteconomics.com.au)

## A.2 General features

The Independent Extended CGE Model makes a number of general assumptions that are consistent with its long-term time horizon. Many of these features are shared with other long-run CGE models.

### Long-term model

The Independent Extended CGE Model is a long-term model, meaning that results refer to the ongoing effects on the economy after it has fully adjusted to economic shocks. In keeping with this, all markets are assumed to have reached equilibrium. This includes key markets such as the labour market, where the real wage for each type of labour adjusts so that demand from industries is equal to supply from households. In addition, the behaviour of households and government is consistent with the inter-temporal budget constraints that they face. This involves levels of household saving and foreign capital inflow that are consistent with stocks of assets and liabilities growing at the same rate as GDP.

The long-term time horizon is fitting because economic policies should be judged against their lasting effects on the economy, not just their effects in the first one or two years.

### Optimising behaviour

Industries and households in the Independent CGE Model choose the best possible outcome, while still remaining within the constraints of production technology and budgets.

- Profit maximisation: the representative business in each industry chooses how to produce (with a mix of primary factors and intermediate inputs) and how much to produce to maximise its profit subject to the prices of its inputs and outputs.
- Utility maximisation: A representative household chooses their consumption levels of leisure and each consumer good and service in a way that maximises their well-being (or utility), subject to a budget constraint.

### Budget constraints

In a sustainable equilibrium, governments and households must meet their budget constraints. For simplicity, we assume that the government budget is balanced in the long run. Given its expenditure requirement, the government chooses its level of taxation consistent with achieving this outcome. In the private sector, a sustainable outcome is one in which household saving is sufficient to generate growth in household assets in line with growth in real GDP.

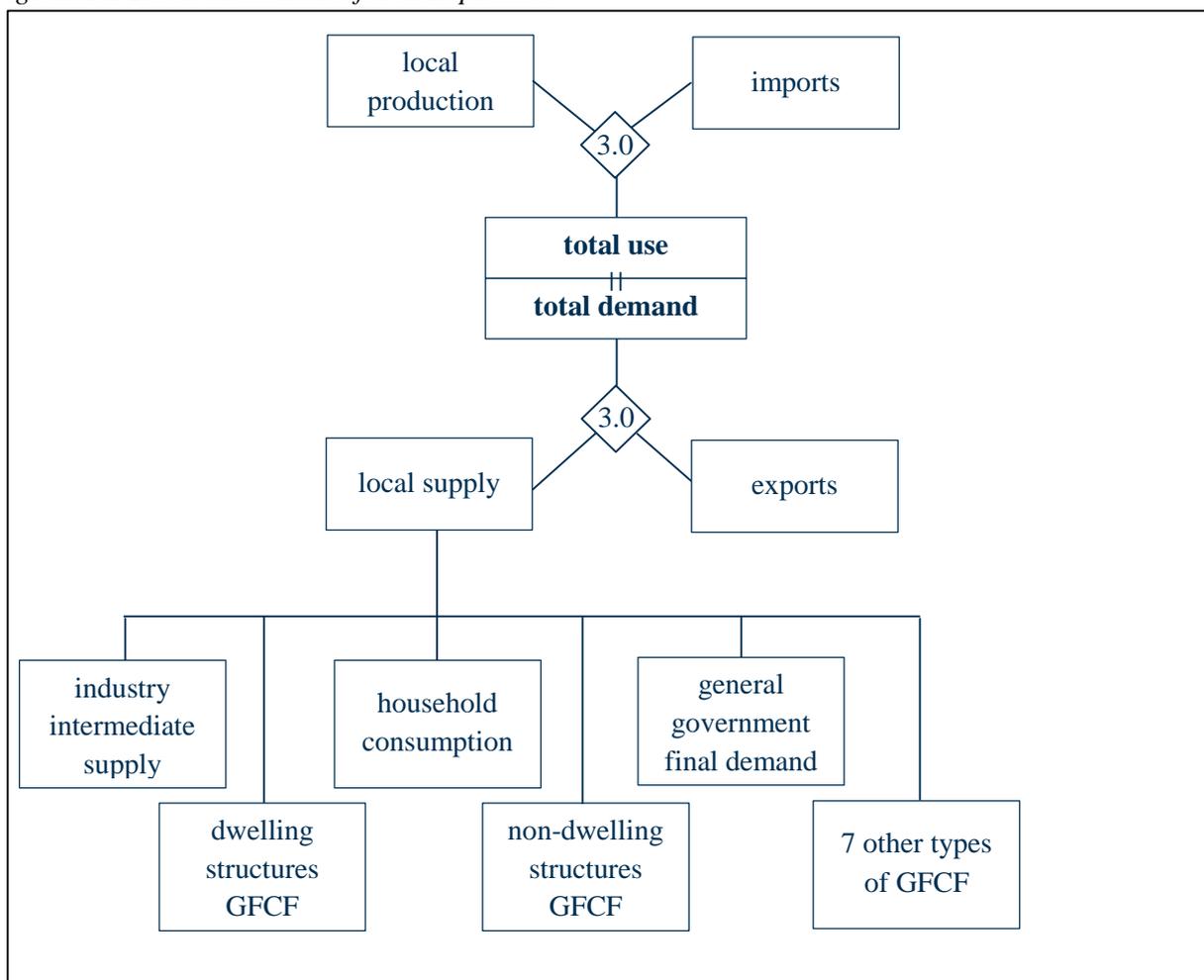
## A.3 Decision makers

This section discusses the interactions between the different decision makers, or ‘economic agents’ in the Independent CGE model – industries, households, government and the foreign sector.

### A.3.1 Trade and demand

The overall structure of each industry in the Independent Extended CGE Model is summarised in Diagram 3.1.

Diagram 3.1 Trade and demand for each product



Note: GFCF is Gross Fixed Capital Formation, or investment.

As shown in Diagram 3.1, total supply in the Independent CGE Model is made up of locally produced and imported varieties of each good. Local production competes with imports, and the elasticity of substitution has been set at 3.0 in most industries.

In each industry, the representative firm chooses the amount to supply to the export market and the amount to supply to the domestic market. It does this using a constant elasticity of transformation (CET) function, with an elasticity of 3.0.

Total supply must equal total demand in a long-run equilibrium. In the Independent Extended CGE Model, local production and imports supply the 13 different categories of demand that are shown in Diagram 3.1.

### A.3.2 Industry production

Local production in each of the 284 industries in the Independent CGE Model is modelled in a sophisticated way that identifies a large set of inputs used by industries. It distinguishes 9 types of capital and 51 types of labour according to occupation. It also identifies land and two industry-specific fixed factors, one of which is fixed in supply in Australia (location specific) and the other which is fixed in supply globally (or firm-specific). These primary factors are combined with intermediate inputs purchased from other industries. The structure of the production decisions is shown in Diagram 3.2.

Each industry can change the mix of inputs that it uses as relative prices change. Some types of primary factors are more substitutable with other factors, and other types of primary factors are less substitutable. To reflect this, the nesting structure of production decisions in the Independent CGE Model is set up in a way that provides for a high degree of flexibility.

Diagram 3.2 below shows an overview of the production technology used by firms in each industry in the Independent CGE model. Further details for non-structure capital, labour and structure services are provided in Diagrams 3.3, 3.4 and 3.5 respectively.

Diagram 3.2 Production in each industry

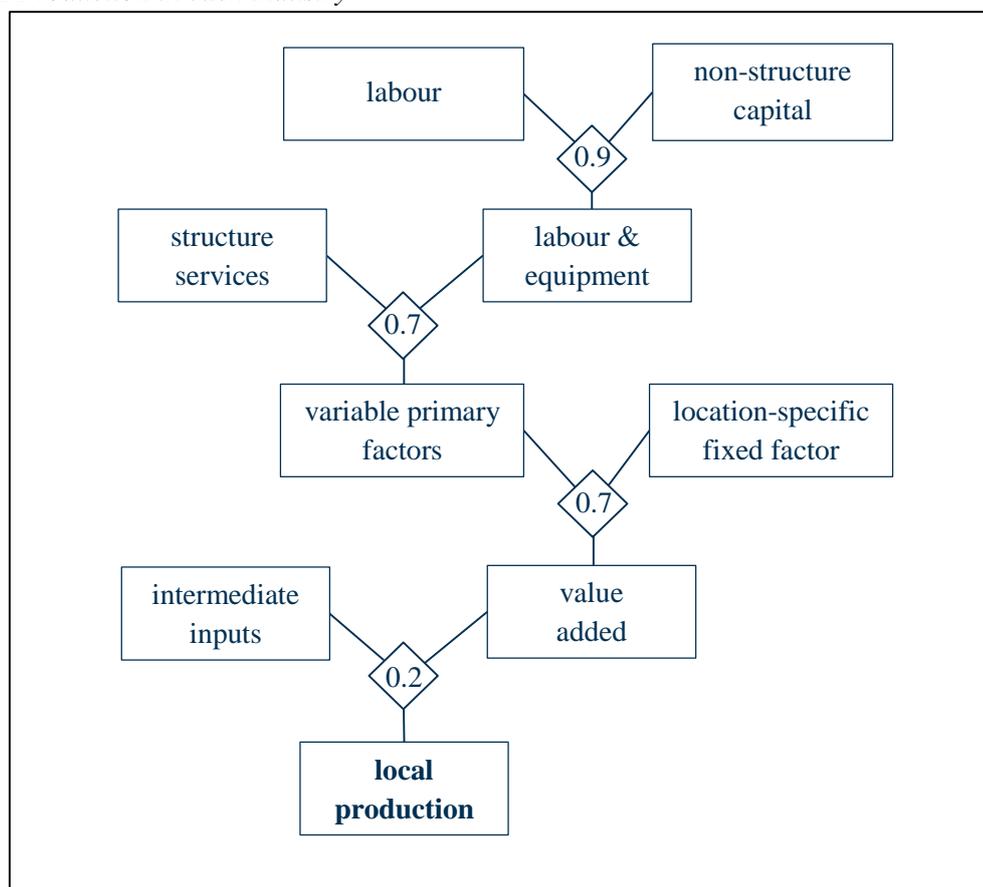
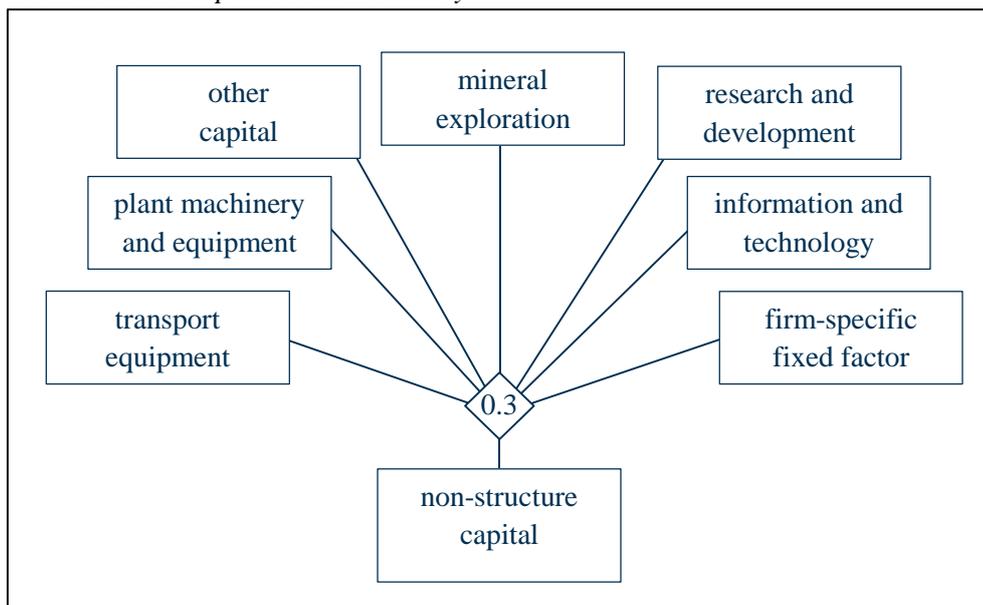


Diagram 3.3 Non-structure capital in each industry



As shown in Diagram 3.4, the modelling of industry demand for each occupation takes into account that while industries can substitute relatively easily between broad skill levels, they are less able to substitute between more specific occupations.

Diagram 3.4: Industry demand for labour

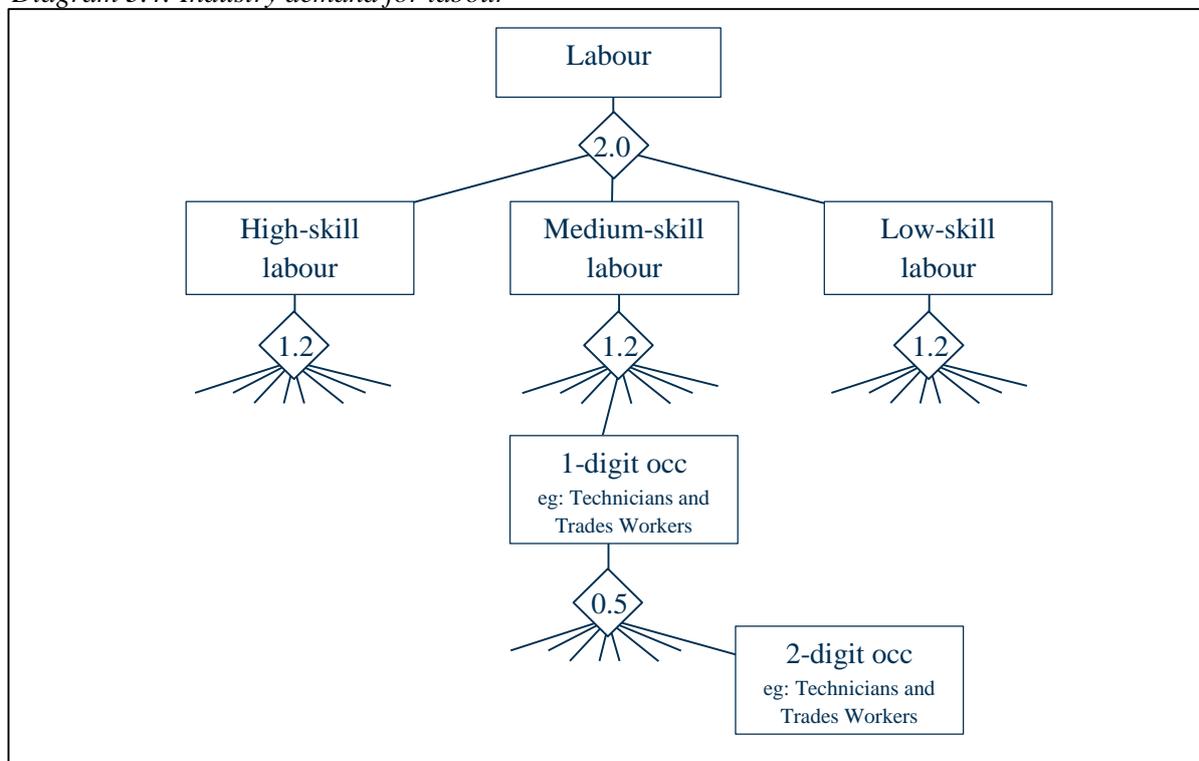
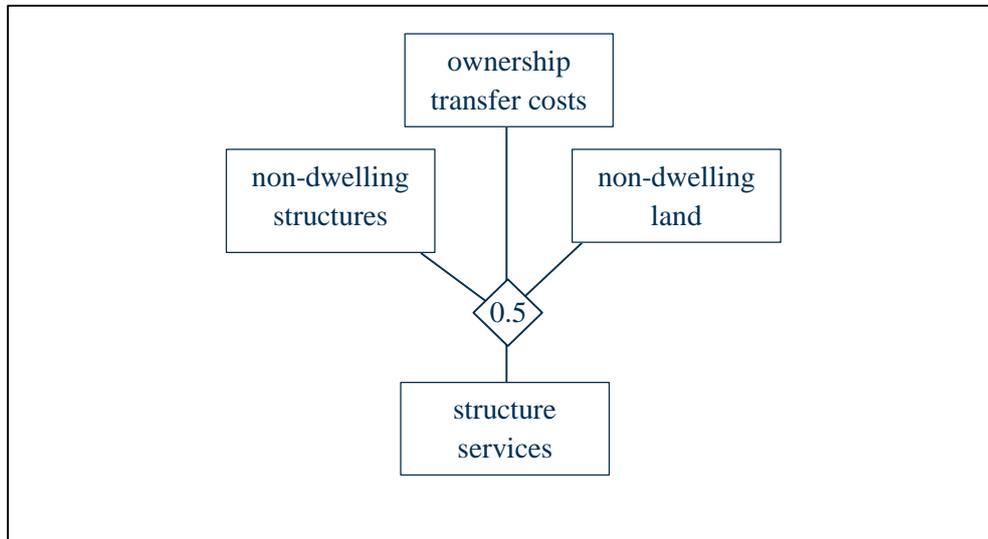


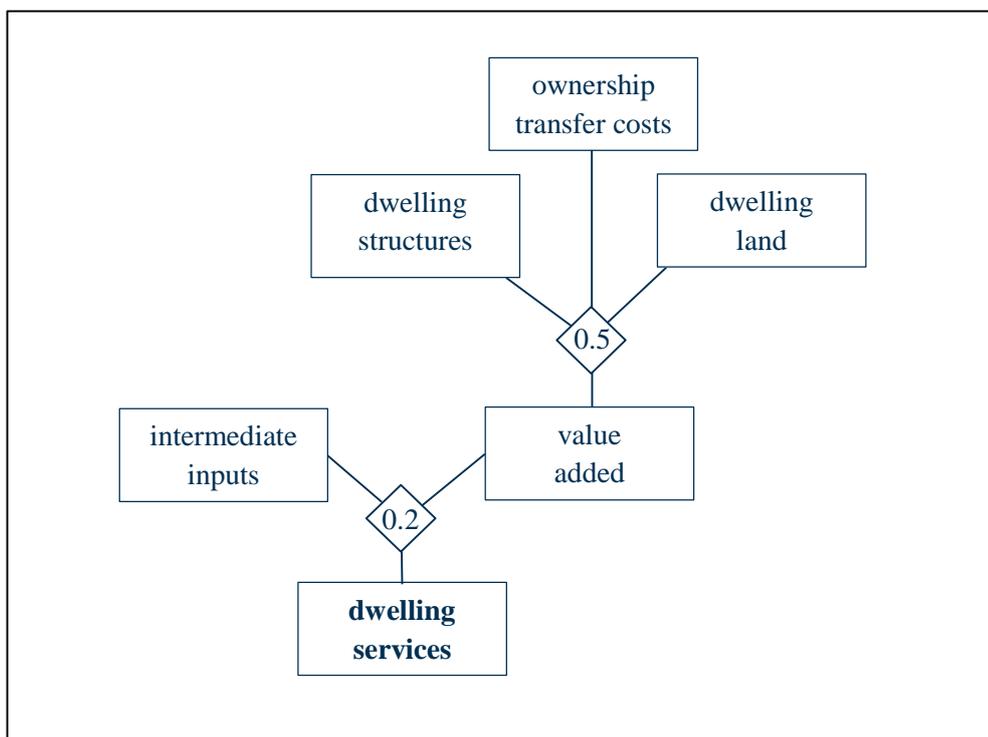
Diagram 3.5 shows that the structure services are produced using non-dwelling structures (which includes commercial buildings and engineering structures such as roads and bridges), non-dwelling land and ownership transfer costs. The need for non-dwelling structures and non-dwelling land to produce structure services is relatively obvious. Ownership transfer costs are incurred as businesses change premises as their needs changes in terms of location or building size or type.

Diagram 3.5 Structure Services in each industry (except Dwellings Services)



Dwelling services are produced in a broadly comparable way to structure services. The primary factors involved are dwelling structures, dwelling land and ownership transfer costs. This production technology for dwellings services is shown in Diagram 3.6 below. In the Independent Extended CGE model, there are two industries that produce dwelling services, namely, the owner-occupied sector and the rented sector. This is a useful distinction, partly because of differences in tax regimes.

Diagram 3.6 Production of Dwelling Services

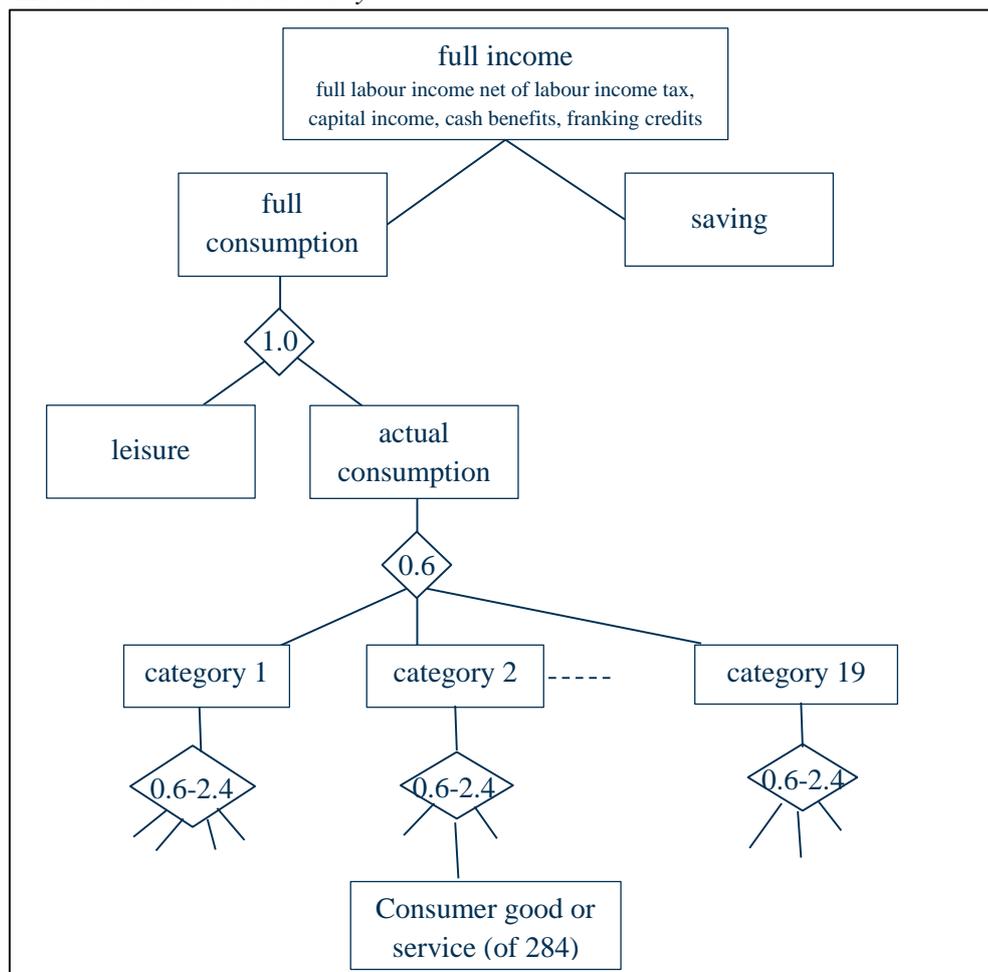


### A.3.3 Households

Households in the Independent Extended CGE model, after saving at a sustainable rate, choose between leisure and consumption, and then divide their consumption between the 284 goods and services. They do so in a way that maximises their utility. This behaviour is illustrated in Diagram 3.7.

Household full income is the amount of income that households would earn if they maximised their time working and consumed no leisure. Full income is made up of full labour income net of tax, after-tax income from owning capital, land and other fixed factors, and transfers from government.

Diagram 3.7 Household choices and utility



Household saving out of full income is set at a sustainable rate, namely the rate at which the capital assets owned by households grow in line with GDP. After saving at this rate, the remainder of full income is available for ‘full consumption’ – which includes the consumption of leisure and of goods and services.

As illustrated in Diagram 3.7, a 3-tier CES utility function is used in modelling the price-sensitive choices that households make concerning their labour supply and the level and pattern of their consumer demand. The first tier describes household choice between leisure and consumption, the second tier describes their choices between 19 broad categories of consumption, and the third tier their choices within each of these broad categories. These three tiers are now discussed in turn.

After meeting their savings target, in the first tier households decide how much of their time to spend in leisure, and how much to spend working. The cost of taking leisure is the amount that would have been earned if the time were instead spent working – which is the real after-tax wage.

Having made their saving and leisure decisions, households are left with a budget for actual consumption expenditure. This budget is allocated across the 284 goods and services distinguished in the model in the second and third tiers of decision making.

In the second tier, households allocate their spending across 19 broad categories of consumption. Those broad categories are listed in Table 3.1.

*Table 3.1 Broad Categories of Consumption*

Food  
Alcoholic beverages  
Cigarettes and tobacco  
Clothing and footwear  
Housing services  
Water and sewerage services  
Electricity, gas and other fuel  
Furnishings and household equipment  
Health  
Vehicle purchase and operation  
Transport services  
Communication  
Goods for recreation and culture  
Recreational and cultural services  
Education services  
Catering  
Accommodation services  
Other goods and services  
Financial services

In the final tier, households choose their pattern of consumption within each of the broad categories, which gives consumer demand for each of the model's 284 goods and services. There is likely to be more scope for households to vary consumption patterns within broad categories than between broad categories. This is taken into account by using a higher default elasticity of substitution of 1.2 in the final tier, compared to 0.6 in the preceding tier.

#### **A.3.4 Measuring household living standards**

Since household decisions are modelled using a consistent utility function, the Independent CGE model is able to provide valid measures of changes in consumer welfare, or living standards, from economic shocks or policy changes. The measure used is the equivalent variation, from welfare economics. This is the income transfer that would need to be given to households before the economic shock or policy change to enable the same level of utility as they would have after the change.

The equivalent variation can be used to determine the excess burden of taxes, which is a measure of the welfare loss per dollar of tax revenue raised. Excess burdens can be calculated for each tax and compared across taxes to assist policy makers in designing a tax system which minimises the adverse impact of raising revenue on household welfare.

### A.3.5 Government

On the expenditure side of the government budget, it is assumed that real government final demand for the 284 goods and services is determined exogenously by government spending policies. Because government expenditures are exogenous in real terms, if prices change, then nominal government expenditures change accordingly. Cash benefits paid to households, as well as franking credits, are modelled as transfers to households.

On the revenue side of the government budget, the model distinguishes indirect taxes on production and components of final demand, as well as direct taxes such as business income tax, labour income tax, and mining taxes. To ensure that the government budget position is sustainable, the model user designates a swing tax policy that adjusts automatically to keep the budget in balance in long run equilibrium. In the Independent CGE Model, either the tax rate on labour income or cash benefits or GST can be used for this purpose.

### A.3.6 Foreign sector

The modelling of Australia's relationship with the foreign sector recognises Australia's position as a small, open economy. This is the case for both trade and capital flows.

Australia is a price taker for imports, meaning that changes in the Australian economy do not influence the foreign-currency price of imports. Likewise, Australia is also close to being a price taker for exports, with a standard value for the export price elasticity of demand of -12. For some industries, where Australia has some market power or product differentiation (e.g. tourism services) a lower value of -6 is used.

Under the small country assumption, Australia can access the world market for funds, so long as the after-tax rate of return that is achieved matches the given rate required on the world capital market. That is, the after tax required rate of return on capital is determined overseas and is not influenced by changes in the domestic economy.

Australian ownership of the capital stocks is determined by initial asset holdings. The rate of household saving is so that the growth in Australian-owned assets from these initial levels is sustainable, matching the rate of growth in GDP. With levels of Australian-owned assets determined in this way, any change in the capital stock is funded by a change in foreign-owned capital.

Foreign ownership of the capital stock must also be in a sustainable long-run equilibrium. The annual inflow of investment funds, recorded on the capital account in the balance of payments, is an amount that ensures that the foreign-owned capital stock grows at a sustainable rate – the long-run rate of GDP growth. The payments to service this borrowing, an outflow on the current account, reflects the required after-tax return on the foreign-owned assets.

Together, the inflow on the capital account and the outflow on the current account imply a certain trade balance if external balance is to be achieved. Exchange rate adjustments ensure that this balance is achieved.

## A.4 Industry detail

The original Independent CGE model, which was developed in 2012, followed comparable models in basing its industry detail on the standard ABS input-output tables. Those tables distinguish around 110 industries, the precise number depending on the year of the tables. The Independent Extended CGE model was developed in 2014. Among its enhancements to the original model, it extends its detail to distinguish 284 industries. The 284 industries are listed in Table 4.1. The two main aspects of this development work were to devise a method for disaggregating the original 114 industries and to choose the specific disaggregation.

To split the original industries, a disaggregation is needed for both the demand and supply sides.

On the demand side, a disaggregation is available from the ABS product details tables. The 2009/10 edition of these tables provide the demand side information for as many as 1,231 products. These were aggregated to obtain the demand side information for the 284 industries used in the extended model.

On the supply side, there is no disaggregation available from the ABS. In disaggregating from 114 to 284 industries, on the supply side inevitably an initial, simplifying assumption was made that the cost structure of each sub-industry was the same as for its parent industry. This assumption will be refined over time. In particular, in undertaking model applications that may be sensitive to this assumption, the sub-industries that are important for the application will be identified and investigated and, where appropriate, adjustments will be made to the allocation of costs between sub-industries.

In principle, using the 2009/10 product details tables allows a model developer to distinguish anything between 114 and 1,231 industries. Choosing 284 industries involved a trade-off between model richness and model maintenance costs. The trade-off was resolved by distinguishing industries that are more likely to be useful in model applications.

A complication in using the product details tables is that there are a significant number of entries that are suppressed by the ABS to protect the confidentiality of individual businesses. However, the information that is provided, together with reasonable assumptions, were used to obtain estimates for these entries that are considered to be reasonable. This was a time-intensive process.

*Table 4.1 List of Industries in the Independent Extended CGE model*

0101A	Sheep Farming
0101B	Beef Cattle Farming
0101C	Grain Growing
0101D	Dairy Cattle Farming
0102A	Poultry Farming
0102B	Deer Farming
0102C	Other Livestock Farming
0103A	Nursery and Floriculture Production
0103B	Mushroom Growing
0103C	Vegetable Growing (Under Cover)
0103D	Potatoes
0103E	Other Vegetables
0103F	Fruit and Tree Nut Growing
0103G	Other Crop Growing
0201Z	Aquaculture
0301Z	Forestry and Logging
0401A	Fishing

0401B Hunting and Trapping  
0501A Forestry Support Services  
0501B Agriculture and Fishing Support Services  
0601Z Coal mining  
0701A Crude oil (incl. condensate)  
0701B Gas Extraction  
0801Z Iron Ore Mining  
0802A Gold Ore Mining  
0802B Other Metal Ore Mining  
0901A Construction Material Mining  
0901B Other Non-Metallic Mineral Mining and Quarrying  
1001A Exploration  
1001B Other Mining Support Services  
1101A Meat Processing  
1101B Poultry Processing  
1101C Bacon and Ham  
1101D Other Smallgoods  
1102Z Processed Seafood Manufacturing  
1103A Milk  
1103B Cheese  
1103C Ice cream and other dairy products  
1104A Jams  
1104B Other Fruit Processing  
1104C Vegetables, frozen  
1104D Vegetables, prepared or preserved  
1104E Tomato pulp, puree and paste  
1104F Other processed vegetables  
1105Z Oils and Fats Manufacturing  
1106A Grain Mill Product Manufacturing  
1106B Cereal, Pasta and Baking Mix Manufacturing  
1107A Bread Manufacturing  
1107B Other Bakery Product Manufacturing  
1108A Sugar Manufacturing  
1108B Confectionery Manufacturing  
1109A Potato, Corn and Other Crisp Manufacturing  
1109B Prepared Animal and Bird Feed Manufacturing  
1109C Coffee and tea, including substitutes  
1109D Other Food Product Manufacturing n.e.c.  
1201Z Soft Drinks, Cordials and Syrup Manufacturing  
1202Z Beer Manufacturing  
1205A Spirit Manufacturing  
1205B Wine and Other Alcoholic Beverage Manufacturing  
1205C Cigarette and Tobacco Product Manufacturing  
1301Z Textile Manufacturing  
1302Z Tanned Leather, Dressed Fur and Leather Product Manufacturing  
1303A Textile Floor Covering Manufacturing  
1303B Rope, Cordage and Twine Manufacturing  
1303C Cut and Sewn Textile Product Manufacturing  
1303D Textile Finishing and Other Textile Product Manufacturing  
1304Z Knitted Product Manufacturing  
1305Z Clothing Manufacturing  
1306Z Footwear Manufacturing

1401Z Sawmill Product Manufacturing  
1402Z Other Wood Product Manufacturing  
1501Z Pulp, Paper and Paperboard Manufacturing  
1502A Paper Stationery Manufacturing  
1502B Sanitary Paper Product Manufacturing  
1502C Other Converted Paper Product Manufacturing  
1601A Printing and Printing Support Services  
1601B Reproduction of Recorded Media  
1701A Automotive petrol; gasoline refining or blending; motor spirit (incl aviation spirit)  
1701B Kerosene (incl kerosene type jet fuel)  
1701C Petrodiesel  
1701D Other Petroleum Refining and Petroleum Fuel Manufacturing  
1701E Other Petroleum and Coal Product Manufacturing  
1801Z Human Pharmaceutical and Medicinal Product Manufacturing  
1802Z Veterinary Pharmaceutical and Medicinal Product Manufacturing  
1803A Basic Chemical Manufacturing  
1803B Basic Polymer Manufacturing  
1803C Fertiliser and Pesticide Manufacturing  
1803D Other Basic Chemical Product Manufacturing  
1804A Soap and Toothpaste Manufacturing  
1804B Other Cleaning Compound Manufacturing  
1804C Cosmetic and Toiletry Preparation Manufacturing  
1901A Tyre Manufacturing  
1901B Other Polymer Product Manufacturing  
1902Z Natural Rubber Product Manufacturing  
2001Z Glass and Glass Product Manufacturing  
2002Z Ceramic Product Manufacturing  
2003Z Cement, Lime and Ready-Mixed Concrete Manufacturing  
2004Z Plaster and Concrete Product Manufacturing  
2005Z Other Non-Metallic Mineral Product Manufacturing  
2101A Basic Ferrous Metal Manufacturing  
2101B Basic Ferrous Metal Product Manufacturing  
2102A Alumina Production  
2102B Aluminium Smelting  
2102C Copper, Silver, Lead and Zinc Smelting and Refining  
2102D Gold - primary and secondary (excl from purchased scrap)  
2102E Other Basic Non-Ferrous Metal Manufacturing  
2102F Basic Non-Ferrous Metal Product Manufacturing  
2201Z Forged Iron and Steel Product Manufacturing  
2202Z Structural Metal Product Manufacturing  
2203A Metal Container Manufacturing  
2203B Sheet Metal Product Manufacturing (except Metal Structural and Container Products)  
2204Z Other Fabricated Metal Product manufacturing  
2301A Motor Vehicle Manufacturing  
2301B Motor Vehicle Body and Trailer Manufacturing  
2301C Automotive Electrical Component Manufacturing  
2301D Other Motor Vehicle Parts Manufacturing  
2301E Other Transport Equipment Manufacturing n.e.c.  
2302A Shipbuilding and Repair Services  
2302B Boatbuilding and Repair Services  
2303Z Railway Rolling Stock Manufacturing and Repair Services  
2304Z Aircraft Manufacturing and Repair Services

2401A Photographic, Optical and Ophthalmic Equipment Manufacturing  
2401B Medical and Surgical Equipment Manufacturing  
2401C Other Professional and Scientific Equipment Manufacturing  
2401D Computer and Electronic Office Equipment Manufacturing  
2401E Communication Equipment Manufacturing  
2401F Other Electronic Equipment Manufacturing  
2403Z Electrical Equipment Manufacturing  
2404Z Domestic Appliance Manufacturing  
2405A Pump, Compressor, Heating and Ventilation Equipment Manufacturing  
2405B Specialised Machinery and Equipment Manufacturing  
2405C Other Machinery and Equipment Manufacturing  
2501Z Furniture Manufacturing  
2502A Jewellery and Silverware Manufacturing  
2502B Toy Manufacturing  
2502C Sporting Product Manufacturing  
2502D Other Manufacturing n.e.c.  
2601A Fossil Fuel Electricity Generation  
2601B Hydro-Electricity Generation  
2601C Other Electricity Generation  
2605A Other electricity service income  
2605M Margin - Electricity transmission, distribution and on selling (2620-2640)  
2701A Other gas service income  
2701M Margin - gas distribution  
2801Z Water Supply, Sewerage and Drainage Services  
2901Z Waste Collection, Treatment and Disposal Services  
3001Z Residential Building Construction  
3002Z Non-Residential Building Construction  
3101A Road and Bridge Construction  
3101B Other Heavy and Civil Engineering Construction  
3201Z Construction Services  
3301A Non-margin - wholesaling services  
3301B Commission-Based Wholesaling  
3301M Margin - wholesaling services  
3901A Non-margin - retailing services  
3901B Retail commission on sales  
3901M Margin - retailing services  
4401Z Accommodation  
4501A Meal preparation and presentation  
4501B Beverage serving service  
4501C Takeaway food  
4501D Catering services  
4501E Net losses from gambling - Clubs, pubs, taverns and bars (Hospitality)  
4501M Margin - food and beverage services (4511-4530)  
4601A Non-margin - Road Freight Transport  
4601B Road Passenger Transport  
4601M Margin - Road Freight Transport  
4701A Non-margin - Rail Freight Transport  
4701B Rail Passenger Transport  
4701M Margin - Rail Freight Transport  
4801A Non-margin - Water Freight Transport  
4801B Water Passenger Transport  
4801M Margin - Water Freight Transport

4901A Non-margin - Air and Space Freight Transport  
4901B Air and Space Passenger Transport  
4901M Margin - Air and Space Freight Transport  
4801C Scenic and Sightseeing Transport  
4801D Non-margin - Pipeline and Other Transport  
4801N Margin - Pipeline and Other Transport  
5101Z Postal and Courier Pick-up and Delivery Service  
5201A Water Transport Support Services  
5201B Airport Operations and Other Air Transport Support Services  
5201C Other Transport Support Services  
5201D Warehousing and Storage Services  
5201M Margin - Water Transport Support Services  
5401A Newspaper and Magazine publishing  
5401B Book publishing  
5401C Other Publishing  
5401D Software Publishing  
5501A Motion Picture and Video Activities  
5501B Sound Recording and Music Publishing  
5601A Radio Broadcasting  
5601B Television Broadcasting  
5701A Internet Publishing and Broadcasting  
5701B Internet Service Providers and Web Search Portals  
5701C Data Processing, Web Hosting and Electronic Information Storage Services  
5801A Wired Telecommunications Network Operation  
5801B Other Telecommunications Network Operation  
5801C Other Telecommunications Services  
6001A Libraries and Archives  
6001B Other Information Services  
6201A Banks, building societies, credit unions  
6201B Other Depository Financial Intermediation  
6201C Non-Depository Financing  
6201D Financial Asset Investing  
6301A Life Insurance  
6301B Health Insurance  
6301C General Insurance  
6301D Superannuation Funds  
6301M Marine insurance provision (Margin)  
6401A Financial Asset Broking Services  
6401B Other Auxiliary Finance and Investment Services  
6401C Auxiliary Insurance Services  
6601A Goods and Equipment Rental and Hiring  
6601B Non-Financial Intangible Assets (Except Copyrights) Leasing  
6701A Residential Property Operators: owner-occupied  
6701B Residential Property Operators: rented  
6702A Non-Residential Property Operators  
6702B Real Estate Services  
6901A Scientific Research Services  
6901B Architectural Services  
6901C Surveying and Mapping Services  
6901D Engineering Design and Engineering Consulting Services  
6901E Other Specialised Design Services  
6901F Scientific Testing and Analysis Services

6901G Legal Services  
6901H Accounting Services  
6901I Advertising Services  
6901J Market Research and Statistical Services  
6901K Corporate Head Office Management Services  
6901L Management Advice and Related Consulting Services  
6901O Veterinary Services  
6901P Professional Photographic Services  
6901Q Other Professional, Scientific and Technical Services n.e.c.  
7001Z Computer Systems Design and Related Services  
7210A Employment Placement and Recruitment Services  
7210B Labour Supply Services  
7210C Travel Agency and Tour Arrangement Services  
7210D Other Administrative Services  
7310A Building Cleaning, Pest Control and Gardening Services  
7310B Packaging Services  
7501Z Public Administration and Regulatory Services  
7601Z Defence  
7701Z Public Order and Safety  
8010A Preschool Education  
8010B Primary Education  
8010C Secondary Education  
8010D Special School Education  
8110A Technical and Vocational Education and Training  
8110B Higher Education  
8210A Adult, Community and Other Education  
8210B Educational Support Services  
8401A Hospitals  
8401B Medical Services  
8401C Pathology and Diagnostic Imaging Services  
8401D Dental Services  
8401E Optometry and optical dispensing  
8401F Other Allied Health Services  
8401G Other Health Care Services  
8601A Aged Care Residential Services  
8601B Other Residential Care Services  
8601C Child Care Services  
8601D Other Social Assistance Services  
8901A Museum Operation  
8901B Parks and Gardens Operations  
8901C Creative and Performing Arts Activities  
9101A Sports and Physical Recreation Activities  
9101B Horse and Dog Racing Activities  
9101C Amusement and Other Recreation Activities  
9201A Casino Operation  
9201B Lottery Operation  
9201C Other Gambling Activities  
9401Z Automotive Repair and Maintenance  
9402A Machinery and Equipment Repair and Maintenance  
9402B Other Repair and Maintenance  
9501A Personal Care Services  
9501B Funeral, Crematorium and Cemetery Services

- 9501C Laundry and Dry-Cleaning Services
- 9501D Photographic Film Processing
- 9501E Parking Services
- 9501F Other Personal Services n.e.c.  
Private Households Employing Staff and Undifferentiated Goods- and Service-Producing
- 9501G Activities of Households for Own Use
- 9502A Religious Services
- 9502B Civic, Professional and Other Interest Group Services

## A.5 Baseline scenario and validation

The model uses a variety of recent data, but the main source is the detailed Input-Output (IO) tables from the ABS, giving the model a detailed picture of the Australian economy. Specifically, the 2009/10 IO tables released in late 2013 are used, which means that the model also uses the contemporary ABS industry classification, ANZSIC 2006. The model is calibrated so that it exactly reproduces this 2009/10 data.

The next step is to simulate a baseline scenario for use as a point of reference. This involves two aspects, uprating the economy from 2009/10 to 2012/13 and normalising the economy to a sustainable position. That is, the baseline scenario provides a normalised, or sustainable, version of the 2012/13 economy.

Uprating the economy from 2009/10 to 2012/13 involves simulating the model after adjusting the model's inputs for the effects of economic developments from 2009/10 to 2012/13. This includes allowing for growth in wages, import prices, productivity and employment from 2009/10 to 2012/13.

Normalising the economy involves taking into account the differences between the structure of the economy in 2009/10, compared to an economy in a long-run sustainable equilibrium. This involves normalising the trade balance, rates of business investment, and the level of the terms-of-trade.

The model has been tested to ensure that it observes a number of widely-accepted balance and neutrality properties for CGE models.

- GDP by expenditure always equals GDP by income. This is true for both nominal and real GDP in all simulations, which is a useful check on the consistency of the model's coding.
- Walras' Law states that if all but one market is in equilibrium, then the last market must also be in equilibrium. In the Independent Extended CGE Model, equilibrium is not imposed in one of the 51 labour markets, but is nevertheless always achieved in that market in model simulations as a consequence of Walras' Law.
- The Independent CGE Model observes price neutrality. When the average nominal wage or numeraire is increased by one per cent, all prices in the model increase by exactly one per cent, and all real variables are unaffected, in accordance with the expected price neutrality property.
- The Independent CGE Model also observes real neutrality. This means that when all of the exogenous real variables are one per cent higher, all of the endogenous real variables are also one per cent higher. The exogenous real variables in the Independent CGE Model are: total labour supply; real general government final demand by industry; the supplies of industry-specific fixed factors; the supplies of land; the real assets owned by the household sector; and the size of the world economy.

## A.6 Business tax

Analysis of the business tax system is important. High or poorly designed business taxes have the potential to cause major economic distortions because of the open economy assumption that the after-tax required rate of return on capital is determined overseas. This assumption implies that an increase in taxation of foreign investment into Australia may need to be offset by higher pre-tax returns on capital to maintain the after-tax returns received by foreign investors. Higher pre-tax returns are achieved by reducing investment and capital, which leads to lower labour productivity.

In light of this, the model has a highly detailed treatment of business taxation, with a focus on important features of the current Australian system as well as tax designs that have been proposed around the world. This takes into account factors such as: the different tax treatments of debt and equity financing; the complex system of depreciation allowances and tax concessions which differ by industry; franking credits; foreign tax credits; and the potential for international profit shifting.

### Treatment of debt and equity financing

Four alternative business income tax systems that have been proposed around the world are provided for in the Independent CGE model. These systems differ in the deductions available for the costs of debt and equity financing, and are modelled as follows.

- Standard corporate income tax (CIT), such as the current Australian system, allows deductions for the interest costs of debt financing, but no deduction with respect to equity financing costs.
- Comprehensive business income tax (CBIT), allows no deductions for financing costs, giving the widest possible tax base.
- Allowance for corporate equity tax (ACE), gives deductions for the interest costs of debt financing, along with an imputed cost for equity financing.
- Allowance for corporate capital tax (ACC), allows a single deduction for an imputed cost for the full capital base, so both equity and debt financing costs are covered by the one deduction.

Both ACE and ACC aim to provide deductions that cover all capital financing costs. With the full cost of capital deductible, the tax base is intended to only include economic rents. In principle, this means that a business tax system based on ACE or ACC would be more efficient than the existing CIT system.

In modelling deductions for the cost of debt financing (under the CIT and ACE), the debt-to-equity ratio of each industry has been estimated using ATO Taxation Statistics data. This allows the model to take into account that the current company income tax system provides higher tax deductions for industries which tend to have higher debt-to-equity ratios.

### Depreciation allowances and tax concessions

Company income tax in Australia allows for a number of depreciation allowances and tax concessions, which differ by industry and asset type. The model takes into account the following aspects of the system of depreciation allowances.

- The tax system allows for depreciation at historic cost which is less generous than economic depreciation which would be calculated at replacement cost.

- Tax and economic depreciation rates differ for each of the nine types of produced assets in the model. Where tax depreciation rates are more concessional for some types of capital than for others, the choice of the mix of capital may be distorted.
- Tax depreciation rates can differ for each industry. This allows modelling of industry tax concessions which allow some industries to depreciate assets at concessionally high rates.
- Immediate expensing is allowed for investment in some assets, sometimes with a loading. This includes certain R&D expenditure, which can be immediately expensed, with loadings that differ by industry.

### Franking credits

Some corporate tax revenue is refunded when franking credits are used, reducing the overall contribution to the budget from company tax. However, some franking credits are “lost” because companies may choose to retain profits rather than distribute them as franked dividends, or because the franking credits accrue to overseas investors who are not able to use them.

### Foreign tax credits

In some circumstances, foreign entities may be able to use corporate income tax paid in Australia as a tax credit against tax payable in their own jurisdiction. These foreign tax credits, which are taken into account in the modelling, mainly relate to US direct investment in Australia. The model assumes that, at the margin, foreign investors in Australia receive tax credits in their home countries to offset around 10 per cent of any change in their tax liabilities in Australia.

Tax credits do not affect Australian tax collections. However, they do affect the cost of capital for foreign investors. Specifically, the potential benefits to foreign investors from reductions in Australian company tax are diluted by an associated reduction in their ability to claim tax credits.

### Choice of firm location

Multinational firms can generate rents through access to intangible assets such as brand names, patents and market power. Company income tax can have an important effect on the locational choice of multinational firms and their rents, which is taken into account in the model. It assumes that multinational firms have access to a firm-specific fixed factor that represents their intangible assets. They allocate the factor between countries to maximise their profit.

The response of firm-specific capital to an increase in the Australian company tax rate is not dissimilar to the response of variable capital. In both cases, capital is likely to be withdrawn, until pre-tax returns rise sufficiently to restore after-tax returns to the levels available in other jurisdictions.

### Profit shifting

The model takes into account that companies may seek to reduce their business tax liability by shifting profits from Australia to countries with lower rates of business tax. It does this by modelling the use of tax havens, including the costs incurred in using tax havens. The model takes into account the overall effect that this behaviour has on both revenue collections and the user cost of capital.

## A.7 Applications

The Independent Extended CGE model is a powerful tool for simulating the economic impacts of changes in government economic policies. This section discusses the applications of the model, including a number of recent projects.

The long-term time horizon in the model is fitting for analysing the effects of economic policies, because government policies should be judged against their lasting effects on the economy, not just their effects in the first one or two years.

The most important metric for judging the merits of any policy is its effect on household living standards, or welfare. As discussed above, the model provides a valid measure of household welfare, which means that policies can be judged according to the public interest. The model also shows the effects of policies on economic activity, employment, trade and investment at the level of individual industries, impacts on households and impacts on the economy as a whole.

### Industry Policy

The detailed modelling of industry production makes the Independent CGE model uniquely well-suited to modelling industry policies. One aspect of this detail is the large number of industries that are distinguished at 284, compared to around 110 industries in comparable models. Another aspect is the detailed modelling of production within each industry, involving nine types of produced capital, 51 types of labour, both location-specific and mobile fixed factors that are industry specific, and land, which goes well beyond the level of detail in comparable models.

### Labour market policy

The detailed treatment of labour markets explicitly models supply and demand for 51 different occupations, as discussed in Section 3.2.2. This means that the Independent CGE model is well suited to estimating the effects of labour market policies. This includes policies related to education, workplace relations and immigration.

### Regional policies

The Independent CGE model includes a regional module which can be used to estimate effects of various economic developments on small regions. The regional module has been designed to allow maximum flexibility in regional disaggregation. The standard version contains the eight States and Territories, and this can readily be extended to include sub-state detail.

### Tax policy

- The Independent CGE model has detailed modelling of the **business tax** system, as discussed section A.6. It takes into account a wide range of features of the current company income tax and can also be used to model alternative business tax systems.
- The model is ideally suited modelling the effects of **personal income tax**. Household labour supply is sensitive to the after-tax real wage, and a higher personal income tax discourages households from working.

- Taxes on the **mining industry**, such as state royalties and resource rent taxes, are also appropriately modelled in the Independent CGE model. For example, it takes into account that royalties and rent taxes have different designs and so have different effects on mining incentives.
- **Indirect taxes**, such as GST and excise taxes, can also be modelled in the Independent CGE model. The 2-tier modelling of consumer demand provides a richer framework for analysing the distortions to spending decisions from the various taxes that consumers face.

### International developments

The Independent CGE model has a sophisticated treatment of Australia's interactions with the global economy, as described in section A.6. This means that it is well suited to modelling government policies relating to trade, including tariffs and free trade agreements. It is also well suited to simulating international developments that occur independently of government policy, such as changes in international prices and rates of return required by world capital markets.

#### A.7.1 Recent projects

Since its development in 2012, the original Independent CGE model has been used for a number of applications. These include:

- analysing the effect of a reduction in the company tax rate with the Australian Treasury, as part of work for the Business Tax Working Group;
- estimating the economic impacts of reducing company tax and reforming mining tax in a paper published in the Tax Policy Journal;
- estimating the effects of improved workplace practices on productivity in the building and construction industry, and the flow-on effects to the wider economy for Master Builders Australia;
- estimating the economic impacts of capital expenditure and plant operation by the oil and gas industry in Gippsland, Victoria and Australia for ExxonMobil; and
- estimating the effects of additional Vocational Education and Training (VET) funding on the labour force and the economy for TAFE Directors Australia.

The Independent Extended CGE model was completed recently and is already in use in three separate client projects.

## A.8 References

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## Appendix B: Detailed results

Tables B1 to B5 provide detailed economic impacts for the five scenarios.

Table B.1 Effects of changes to FCS policy on household living standards

	\$100k limit	\$50k limit	apply premium	limit + premium	abolish FCS	costless scheme
Real wage	-0.01%	-0.01%	-0.02%	-0.03%	-0.27%	-0.02%
Real after-tax wage	0.10%	0.14%	0.15%	0.21%	0.02%	0.31%
Real consumption (national accounts)	0.05%	0.08%	0.08%	0.11%	-0.07%	0.17%
consumption	0.05%	0.08%	0.08%	0.11%	-0.07%	0.17%
leisure	-0.04%	-0.07%	-0.07%	-0.10%	-0.09%	-0.15%
full consumption	0.03%	0.04%	0.04%	0.06%	-0.07%	0.10%
full nominal consumption	0.06%	0.09%	0.10%	0.14%	0.20%	0.19%
Household welfare \$m 2012/13 terms	325	485	473	683	-800	1,061

Source: Independent Economics

Table B.2 Effects of changes to FCS policy on real GDP by expenditure

	\$100k limit	\$50k limit	apply premium	limit + premium	abolish FCS	costless scheme
Households Final Consumption Expenditure	0.05%	0.08%	0.08%	0.11%	-0.07%	0.17%
General Government Final Demand	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Investment	0.04%	0.06%	0.06%	0.09%	-0.06%	0.13%
Exports	0.04%	0.06%	0.06%	0.09%	0.01%	0.13%
less Imports	0.05%	0.07%	0.07%	0.10%	0.01%	0.15%
<b>GDP</b>	<b>0.04%</b>	<b>0.05%</b>	<b>0.05%</b>	<b>0.08%</b>	<b>-0.05%</b>	<b>0.12%</b>

Source: Independent Economics

Table B.3 Effects of changes to FCS policy on real GDP by broad (1-digit) industry

	\$100k limit	\$50k limit	apply premium	limit + premium	abolish FCS	costless scheme
A Agriculture, forestry and fishing	0.05%	0.07%	0.07%	0.10%	0.03%	0.15%
B Mining	0.03%	0.04%	0.04%	0.06%	0.01%	0.08%
C Manufacturing	0.04%	0.06%	0.07%	0.10%	0.02%	0.14%
D Electricity, gas, water and waste services	0.05%	0.08%	0.08%	0.12%	0.02%	0.17%
E Construction	0.03%	0.05%	0.05%	0.07%	-0.05%	0.10%
F Wholesale trade	0.05%	0.07%	0.08%	0.11%	0.03%	0.16%
G Retail trade	0.06%	0.09%	0.09%	0.14%	0.06%	0.20%
H Accommodation and food services	0.05%	0.08%	0.08%	0.12%	0.06%	0.17%
I Transport, postal and warehousing	0.04%	0.06%	0.07%	0.10%	0.03%	0.14%
J Information media and telecommunications	0.05%	0.07%	0.08%	0.11%	0.02%	0.16%
K Financial and insurance services	0.02%	0.03%	0.01%	0.02%	-0.59%	0.07%
L Rental, hiring and real estate services	0.04%	0.06%	0.06%	0.08%	-0.01%	0.12%
M Professional, scientific and technical services	0.04%	0.06%	0.06%	0.09%	0.00%	0.13%
N Administrative and support services	0.04%	0.06%	0.07%	0.10%	0.01%	0.14%
O Public administration and safety	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%
P Education and training	0.03%	0.04%	0.04%	0.06%	0.04%	0.09%
Q Health care and social assistance	0.02%	0.03%	0.03%	0.05%	0.03%	0.07%
R Arts and recreation services	0.05%	0.08%	0.08%	0.12%	0.04%	0.17%
S Other services	0.05%	0.08%	0.08%	0.12%	0.04%	0.17%
T Ownership of dwellings	0.03%	0.04%	0.03%	0.05%	-0.14%	0.08%
Indirect taxes	0.05%	0.08%	0.08%	0.12%	0.02%	0.18%
<b>GDP</b>	<b>0.04%</b>	<b>0.05%</b>	<b>0.05%</b>	<b>0.08%</b>	<b>-0.05%</b>	<b>0.12%</b>

Source: Independent Economics

Table B.4 Effects of changes to FCS policy on real household consumption by broad category

	\$100k limit	\$50k limit	apply premium	limit + premium	abolish FCS	costless scheme
Food	0.07%	0.10%	0.10%	0.15%	0.06%	0.22%
Alcoholic beverages	0.06%	0.10%	0.10%	0.15%	0.06%	0.21%
Cigarettes and tobacco	0.06%	0.10%	0.10%	0.14%	0.06%	0.21%
Clothing and footwear	0.07%	0.10%	0.10%	0.15%	0.06%	0.22%
Housing services	0.04%	0.06%	0.06%	0.08%	-0.15%	0.13%
Water and sewerage services	0.08%	0.12%	0.12%	0.18%	0.05%	0.26%
Electricity, gas and other fuel	0.07%	0.10%	0.11%	0.16%	0.06%	0.23%
Furnishings and household equipment	0.07%	0.10%	0.10%	0.15%	0.06%	0.22%
Health	0.07%	0.10%	0.11%	0.15%	0.06%	0.22%
Vehicle purchase and operation	0.07%	0.10%	0.11%	0.15%	0.06%	0.22%
Transport services	0.07%	0.11%	0.11%	0.16%	0.05%	0.23%
Communication	0.07%	0.10%	0.10%	0.15%	0.06%	0.22%
Goods for recreation and culture	0.07%	0.10%	0.11%	0.15%	0.06%	0.22%
Recreational and cultural services	0.07%	0.10%	0.11%	0.16%	0.06%	0.23%
Education services	0.07%	0.10%	0.11%	0.16%	0.07%	0.23%
Catering	0.07%	0.10%	0.10%	0.15%	0.06%	0.21%
Accommodation services	0.06%	0.09%	0.10%	0.14%	0.07%	0.21%
Other goods and services	0.07%	0.10%	0.11%	0.15%	0.06%	0.22%
Financial services	-0.04%	-0.06%	-0.10%	-0.14%	-0.98%	-0.14%
<b>Total</b>	<b>0.05%</b>	<b>0.08%</b>	<b>0.08%</b>	<b>0.11%</b>	<b>-0.07%</b>	<b>0.17%</b>

Source: Independent Economics

Table B.5 Effects of changes to FCS policy on real GDP by detailed (model) industry

	\$100k limit	\$50k limit	apply premium	limit + premium	abolish FCS	costless scheme
0101A Sheep Farming	0.04%	0.05%	0.06%	0.08%	0.03%	0.12%
0101B Beef Cattle Farming	0.04%	0.07%	0.07%	0.10%	0.05%	0.14%
0101C Grain Growing	0.04%	0.06%	0.06%	0.09%	0.02%	0.13%
0101D Dairy Cattle Farming	0.05%	0.08%	0.08%	0.12%	0.05%	0.18%
0102A Poultry Farming	0.05%	0.07%	0.07%	0.11%	0.05%	0.15%
0102B Deer Farming	0.04%	0.06%	0.06%	0.09%	0.05%	0.13%
0102C Other Livestock Farming	0.05%	0.07%	0.07%	0.11%	0.04%	0.15%
0103A Nursery and Floriculture Production	0.05%	0.07%	0.08%	0.11%	0.01%	0.16%
0103B Mushroom Growing	0.06%	0.08%	0.09%	0.13%	0.05%	0.19%
0103C Vegetable Growing (Under Cover)	0.05%	0.08%	0.08%	0.12%	0.04%	0.18%
0103D Potatoes	0.06%	0.08%	0.09%	0.13%	0.05%	0.18%
0103E Other Vegetables	0.06%	0.09%	0.09%	0.13%	0.05%	0.19%
0103F Fruit and Tree Nut Growing	0.05%	0.08%	0.08%	0.12%	0.05%	0.17%
0103G Other Crop Growing	0.05%	0.07%	0.07%	0.11%	0.04%	0.16%
0201Z Aquaculture	0.05%	0.08%	0.09%	0.12%	0.05%	0.18%
0301Z Forestry and Logging	0.03%	0.05%	0.05%	0.07%	-0.03%	0.11%
0401A Fishing	0.05%	0.08%	0.08%	0.12%	0.06%	0.17%
0401B Hunting and Trapping	0.02%	0.03%	0.04%	0.05%	0.04%	0.07%
0501A Forestry Support Services	0.04%	0.05%	0.06%	0.08%	0.01%	0.12%
0501B Agriculture and Fishing Support Services	0.05%	0.07%	0.07%	0.10%	0.03%	0.15%
0601Z Coal mining	0.03%	0.04%	0.04%	0.06%	0.02%	0.09%
0701A Crude oil (incl. condensate)	0.01%	0.02%	0.02%	0.03%	0.01%	0.04%
0701B Gas Extraction	0.02%	0.03%	0.04%	0.05%	0.01%	0.07%
0801Z Iron Ore Mining	0.03%	0.04%	0.05%	0.07%	0.01%	0.10%
0802A Gold Ore Mining	0.03%	0.04%	0.04%	0.06%	0.02%	0.08%
0802B Other Metal Ore Mining	0.02%	0.03%	0.04%	0.05%	0.02%	0.07%
0901A Construction Material Mining	0.03%	0.05%	0.05%	0.07%	-0.04%	0.11%

0901B Other Non-Metallic Mineral Mining and Quarrying	0.06%	0.08%	0.09%	0.13%	0.03%	0.18%
1001A Exploration	0.04%	0.06%	0.06%	0.09%	0.01%	0.13%
1001B Other Mining Support Services	0.03%	0.04%	0.05%	0.07%	0.02%	0.10%
1101A Meat Processing	0.04%	0.06%	0.06%	0.09%	0.05%	0.13%
1101B Poultry Processing	0.06%	0.09%	0.10%	0.14%	0.05%	0.20%
1101C Bacon and Ham	0.06%	0.09%	0.09%	0.13%	0.05%	0.19%
1101D Other Smallgoods	0.06%	0.09%	0.09%	0.14%	0.05%	0.20%
1102Z Processed Seafood Manufacturing	0.06%	0.09%	0.10%	0.14%	0.05%	0.21%
1103A Milk	0.06%	0.09%	0.09%	0.13%	0.06%	0.19%
1103B Cheese	0.06%	0.08%	0.09%	0.13%	0.05%	0.18%
1103C Ice cream and other dairy products	0.06%	0.08%	0.09%	0.13%	0.06%	0.18%
1104A Jams	0.06%	0.09%	0.10%	0.14%	0.07%	0.21%
1104B Other Fruit Processing	0.06%	0.09%	0.10%	0.14%	0.07%	0.20%
1104C Vegetables, frozen	0.06%	0.09%	0.10%	0.14%	0.06%	0.20%
1104D Vegetables, prepared or preserved	0.05%	0.07%	0.08%	0.11%	0.06%	0.16%
1104E Tomato pulp, puree and paste	0.06%	0.09%	0.10%	0.14%	0.07%	0.20%
1104F Other processed vegetables	0.06%	0.09%	0.09%	0.14%	0.06%	0.19%
1105Z Oils and Fats Manufacturing	0.06%	0.08%	0.09%	0.13%	0.05%	0.19%
1106A Grain Mill Product Manufacturing	0.06%	0.09%	0.09%	0.13%	0.05%	0.19%
1106B Cereal, Pasta and Baking Mix Manufacturing	0.06%	0.09%	0.10%	0.14%	0.05%	0.20%
1107A Bread Manufacturing	0.06%	0.09%	0.09%	0.13%	0.07%	0.19%
1107B Other Bakery Product Manufacturing	0.06%	0.08%	0.09%	0.13%	0.07%	0.18%
1108A Sugar Manufacturing	0.04%	0.06%	0.07%	0.10%	0.06%	0.14%
1108B Confectionery Manufacturing	0.06%	0.09%	0.09%	0.13%	0.07%	0.19%
1109A Potato, Corn and Other Crisp Manufacturing	0.06%	0.09%	0.10%	0.14%	0.07%	0.21%
1109B Prepared Animal and Bird Feed Manufacturing	0.06%	0.08%	0.09%	0.13%	0.05%	0.18%
1109C Coffee and tea, including substitutes	0.06%	0.09%	0.10%	0.14%	0.06%	0.20%
1109D Other Food Product Manufacturing n.e.c.	0.06%	0.09%	0.09%	0.13%	0.06%	0.19%
1201Z Soft Drinks, Cordials and Syrup Manufacturing	0.04%	0.07%	0.07%	0.10%	0.05%	0.15%
1202Z Beer Manufacturing	0.05%	0.07%	0.07%	0.11%	0.04%	0.15%

1205A Spirit Manufacturing	0.05%	0.07%	0.07%	0.11%	0.05%	0.15%
1205B Wine and Other Alcoholic Beverage Manufacturing	0.04%	0.06%	0.06%	0.09%	0.04%	0.13%
1205C Cigarette and Tobacco Product Manufacturing	0.04%	0.05%	0.06%	0.08%	0.05%	0.12%
1301Z Textile Manufacturing	0.04%	0.06%	0.06%	0.09%	0.05%	0.13%
1302Z Tanned Leather, Dressed Fur and Leather Product Manufacturing	0.03%	0.05%	0.05%	0.08%	0.05%	0.11%
1303A Textile Floor Covering Manufacturing	0.04%	0.06%	0.07%	0.10%	0.04%	0.14%
1303B Rope, Cordage and Twine Manufacturing	0.04%	0.06%	0.07%	0.10%	0.04%	0.14%
1303C Cut and Sewn Textile Product Manufacturing	0.05%	0.07%	0.08%	0.11%	0.05%	0.16%
1303D Textile Finishing and Other Textile Product Manufacturing	0.04%	0.07%	0.07%	0.10%	0.05%	0.14%
1304Z Knitted Product Manufacturing	0.04%	0.05%	0.06%	0.09%	0.13%	0.12%
1305Z Clothing Manufacturing	0.05%	0.07%	0.07%	0.11%	0.08%	0.15%
1306Z Footwear Manufacturing	0.06%	0.08%	0.09%	0.13%	0.07%	0.18%
1401Z Sawmill Product Manufacturing	0.03%	0.05%	0.05%	0.07%	-0.05%	0.10%
1402Z Other Wood Product Manufacturing	0.03%	0.05%	0.05%	0.07%	-0.07%	0.11%
1501Z Pulp, Paper and Paperboard Manufacturing	0.05%	0.07%	0.07%	0.11%	0.04%	0.16%
1502A Paper Stationery Manufacturing	0.04%	0.07%	0.07%	0.10%	0.03%	0.14%
1502B Sanitary Paper Product Manufacturing	0.05%	0.08%	0.08%	0.12%	0.05%	0.18%
1502C Other Converted Paper Product Manufacturing	0.05%	0.07%	0.08%	0.11%	0.03%	0.16%
1601A Printing and Printing Support Services	0.04%	0.06%	0.07%	0.09%	0.01%	0.14%
1601B Reproduction of Recorded Media	0.05%	0.07%	0.07%	0.11%	0.02%	0.16%
1701A Automotive petrol; gasoline refining or blending; motor spirit (incl aviation spirit)	0.06%	0.08%	0.09%	0.13%	0.03%	0.18%
1701B Kerosene (incl kerosene type jet fuel)	0.05%	0.08%	0.08%	0.11%	0.04%	0.17%
1701C Petrodiesel	0.05%	0.07%	0.07%	0.10%	0.01%	0.15%
1701D Other Petroleum Refining and Petroleum Fuel Manufacturing	0.05%	0.07%	0.07%	0.10%	0.01%	0.15%
1701E Other Petroleum and Coal Product Manufacturing	0.04%	0.06%	0.07%	0.10%	0.01%	0.14%

1801Z Human Pharmaceutical and Medicinal Product Manufacturing	0.03%	0.05%	0.05%	0.07%	0.04%	0.11%
1802Z Veterinary Pharmaceutical and Medicinal Product Manufacturing	0.06%	0.08%	0.09%	0.13%	0.03%	0.18%
1803A Basic Chemical Manufacturing	0.05%	0.07%	0.07%	0.10%	0.02%	0.15%
1803B Basic Polymer Manufacturing	0.05%	0.07%	0.07%	0.11%	0.01%	0.15%
1803C Fertiliser and Pesticide Manufacturing	0.06%	0.08%	0.09%	0.13%	0.03%	0.18%
1803D Other Basic Chemical Product Manufacturing	0.05%	0.07%	0.07%	0.10%	0.02%	0.15%
1804A Soap and Toothpaste Manufacturing	0.06%	0.09%	0.09%	0.13%	0.06%	0.19%
1804B Other Cleaning Compound Manufacturing	0.06%	0.08%	0.09%	0.13%	0.05%	0.19%
1804C Cosmetic and Toiletry Preparation Manufacturing	0.06%	0.09%	0.10%	0.14%	0.07%	0.20%
1901A Tyre Manufacturing	0.05%	0.08%	0.09%	0.12%	0.07%	0.18%
1901B Other Polymer Product Manufacturing	0.05%	0.07%	0.07%	0.10%	0.00%	0.15%
1902Z Natural Rubber Product Manufacturing	0.03%	0.04%	0.04%	0.06%	0.03%	0.09%
2001Z Glass and Glass Product Manufacturing	0.05%	0.08%	0.08%	0.12%	0.05%	0.17%
2002Z Ceramic Product Manufacturing	0.04%	0.06%	0.06%	0.09%	-0.04%	0.13%
2003Z Cement, Lime and Ready-Mixed Concrete Manufacturing	0.03%	0.05%	0.05%	0.07%	-0.06%	0.10%
2004Z Plaster and Concrete Product Manufacturing	0.03%	0.05%	0.04%	0.06%	-0.08%	0.10%
2005Z Other Non-Metallic Mineral Product Manufacturing	0.04%	0.05%	0.05%	0.08%	-0.02%	0.12%
2101A Basic Ferrous Metal Manufacturing	0.04%	0.06%	0.06%	0.09%	0.00%	0.13%
2101B Basic Ferrous Metal Product Manufacturing	0.04%	0.06%	0.06%	0.09%	0.02%	0.13%
2102A Alumina Production	0.03%	0.04%	0.05%	0.07%	0.03%	0.10%
2102B Aluminium Smelting	0.04%	0.05%	0.06%	0.08%	0.02%	0.12%
2102C Copper, Silver, Lead and Zinc Smelting and Refining	0.03%	0.05%	0.05%	0.07%	0.03%	0.10%
2102D Gold - primary and secondary (excl from purchased scrap)	0.03%	0.04%	0.04%	0.06%	0.03%	0.09%
2102E Other Basic Non-Ferrous Metal Manufacturing	0.03%	0.05%	0.05%	0.07%	0.03%	0.11%

2102F Basic Non-Ferrous Metal Product Manufacturing	0.04%	0.06%	0.06%	0.08%	0.01%	0.12%
2201Z Forged Iron and Steel Product Manufacturing	0.04%	0.06%	0.07%	0.10%	0.02%	0.14%
2202Z Structural Metal Product Manufacturing	0.03%	0.05%	0.05%	0.07%	-0.04%	0.11%
2203A Metal Container Manufacturing	0.04%	0.06%	0.07%	0.10%	0.00%	0.14%
2203B Sheet Metal Product Manufacturing (except Metal Structural and Container Products)	0.04%	0.06%	0.06%	0.09%	0.00%	0.14%
2204Z Other Fabricated Metal Product manufacturing	0.03%	0.05%	0.05%	0.08%	0.02%	0.11%
2301A Motor Vehicle Manufacturing	0.06%	0.08%	0.09%	0.13%	0.04%	0.18%
2301B Motor Vehicle Body and Trailer Manufacturing	0.05%	0.08%	0.08%	0.12%	0.03%	0.18%
2301C Automotive Electrical Component Manufacturing	0.05%	0.08%	0.08%	0.12%	0.03%	0.18%
2301D Other Motor Vehicle Parts Manufacturing	0.06%	0.09%	0.09%	0.13%	0.04%	0.19%
2301E Other Transport Equipment Manufacturing n.e.c.	0.05%	0.08%	0.08%	0.12%	0.05%	0.17%
2302A Shipbuilding and Repair Services	0.00%	0.01%	0.01%	0.01%	0.02%	0.01%
2302B Boatbuilding and Repair Services	0.05%	0.07%	0.07%	0.10%	0.04%	0.15%
2303Z Railway Rolling Stock Manufacturing and Repair Services	0.04%	0.06%	0.06%	0.09%	0.06%	0.12%
2304Z Aircraft Manufacturing and Repair Services	0.03%	0.05%	0.05%	0.07%	0.06%	0.10%
2401A Photographic, Optical and Ophthalmic Equipment Manufacturing	0.05%	0.08%	0.09%	0.12%	0.05%	0.18%
2401B Medical and Surgical Equipment Manufacturing	0.04%	0.06%	0.07%	0.10%	0.03%	0.14%
2401C Other Professional and Scientific Equipment Manufacturing	0.05%	0.07%	0.07%	0.10%	0.03%	0.15%
2401D Computer and Electronic Office Equipment Manufacturing	0.05%	0.07%	0.07%	0.11%	0.03%	0.16%
2401E Communication Equipment Manufacturing	0.05%	0.08%	0.08%	0.12%	0.03%	0.17%
2401F Other Electronic Equipment Manufacturing	0.05%	0.08%	0.08%	0.12%	0.04%	0.17%
2403Z Electrical Equipment Manufacturing	0.04%	0.06%	0.07%	0.10%	0.03%	0.14%
2404Z Domestic Appliance Manufacturing	0.05%	0.08%	0.09%	0.12%	0.06%	0.18%

2405A Pump, Compressor, Heating and Ventilation Equipment Manufacturing	0.04%	0.06%	0.06%	0.09%	0.03%	0.13%
2405B Specialised Machinery and Equipment Manufacturing	0.04%	0.06%	0.07%	0.10%	0.03%	0.14%
2405C Other Machinery and Equipment Manufacturing	0.04%	0.06%	0.06%	0.09%	0.04%	0.13%
2501Z Furniture Manufacturing	0.04%	0.06%	0.07%	0.10%	0.05%	0.14%
2502A Jewellery and Silverware Manufacturing	0.05%	0.07%	0.07%	0.11%	0.07%	0.15%
2502B Toy Manufacturing	0.06%	0.08%	0.09%	0.13%	0.09%	0.18%
2502C Sporting Product Manufacturing	0.06%	0.09%	0.09%	0.13%	0.09%	0.19%
2502D Other Manufacturing n.e.c.	0.04%	0.06%	0.07%	0.10%	0.04%	0.14%
2601A Fossil Fuel Electricity Generation	0.05%	0.08%	0.08%	0.12%	0.03%	0.17%
2601B Hydro-Electricity Generation	0.05%	0.08%	0.08%	0.12%	0.03%	0.17%
2601C Other Electricity Generation	0.05%	0.08%	0.09%	0.12%	0.03%	0.18%
2605A Other electricity service income	0.06%	0.08%	0.09%	0.12%	0.03%	0.18%
2605M Margin - Electricity transmission, distribution and on selling (2620-2640)	0.05%	0.07%	0.08%	0.11%	0.03%	0.16%
2701A Other gas service income	0.05%	0.07%	0.07%	0.10%	0.02%	0.15%
2701M Margin - gas distribution	0.04%	0.06%	0.06%	0.09%	0.03%	0.14%
2801Z Water Supply, Sewerage and Drainage Services	0.06%	0.09%	0.09%	0.13%	0.02%	0.19%
2901Z Waste Collection, Treatment and Disposal Services	0.03%	0.05%	0.05%	0.07%	-0.02%	0.11%
3001Z Residential Building Construction	0.03%	0.04%	0.04%	0.05%	-0.17%	0.09%
3002Z Non-Residential Building Construction	0.02%	0.03%	0.03%	0.04%	0.02%	0.06%
3101A Road and Bridge Construction	0.01%	0.01%	0.01%	0.02%	0.01%	0.03%
3101B Other Heavy and Civil Engineering Construction	0.03%	0.05%	0.05%	0.07%	0.02%	0.10%
3201Z Construction Services	0.04%	0.05%	0.05%	0.08%	-0.06%	0.12%
3301A Non-margin - wholesaling services	0.05%	0.07%	0.08%	0.11%	0.02%	0.16%
3301B Commission-Based Wholesaling	0.05%	0.07%	0.08%	0.11%	0.02%	0.16%
3301M Margin - wholesaling services	0.05%	0.07%	0.08%	0.11%	0.03%	0.16%
3901A Non-margin - retailing services	0.05%	0.07%	0.08%	0.11%	0.01%	0.16%

3901B Retail commission on sales	0.06%	0.09%	0.09%	0.13%	0.03%	0.19%
3901M Margin - retailing services	0.06%	0.09%	0.09%	0.14%	0.06%	0.20%
4401Z Accommodation	0.04%	0.06%	0.07%	0.10%	0.07%	0.14%
4501A Meal preparation and presentation	0.05%	0.08%	0.08%	0.12%	0.05%	0.17%
4501B Beverage serving service	0.06%	0.08%	0.09%	0.13%	0.05%	0.18%
4501C Takeaway food	0.06%	0.09%	0.09%	0.13%	0.06%	0.19%
4501D Catering services	0.04%	0.06%	0.06%	0.09%	0.02%	0.14%
4501E Net losses from gambling - Clubs, pubs, taverns and bars (Hospitality)	0.06%	0.08%	0.09%	0.13%	0.06%	0.19%
4501M Margin - food and beverage services (4511-4530)	0.06%	0.09%	0.10%	0.14%	0.06%	0.20%
4601A Non-margin - Road Freight Transport	0.05%	0.07%	0.07%	0.11%	0.02%	0.15%
4601B Road Passenger Transport	0.04%	0.07%	0.07%	0.10%	0.05%	0.14%
4601M Margin - Road Freight Transport	0.05%	0.07%	0.07%	0.11%	0.03%	0.15%
4701A Non-margin - Rail Freight Transport	0.04%	0.06%	0.06%	0.09%	0.02%	0.13%
4701B Rail Passenger Transport	0.05%	0.08%	0.08%	0.12%	0.08%	0.17%
4701M Margin - Rail Freight Transport	0.02%	0.03%	0.04%	0.06%	0.14%	0.07%
4801A Non-margin - Water Freight Transport	0.10%	0.16%	0.16%	0.23%	-0.01%	0.34%
4801B Water Passenger Transport	0.06%	0.09%	0.10%	0.14%	0.02%	0.21%
4801M Margin - Water Freight Transport	0.07%	0.10%	0.10%	0.15%	0.01%	0.22%
4901A Non-margin - Air and Space Freight Transport	0.04%	0.06%	0.06%	0.09%	0.03%	0.13%
4901B Air and Space Passenger Transport	0.05%	0.08%	0.09%	0.12%	0.05%	0.18%
4901M Margin - Air and Space Freight Transport	0.05%	0.07%	0.08%	0.11%	0.03%	0.16%
4801C Scenic and Sightseeing Transport	0.08%	0.11%	0.12%	0.17%	0.03%	0.25%
4801D Non-margin - Pipeline and Other Transport	0.04%	0.07%	0.07%	0.10%	0.01%	0.14%
4801N Margin - Pipeline and Other Transport	0.04%	0.06%	0.07%	0.10%	0.03%	0.14%
5101Z Postal and Courier Pick-up and Delivery Service	0.05%	0.07%	0.07%	0.10%	0.02%	0.15%
5201A Water Transport Support Services	0.05%	0.08%	0.08%	0.12%	0.02%	0.17%
5201B Airport Operations and Other Air Transport Support Services	0.06%	0.08%	0.09%	0.13%	0.03%	0.19%
5201C Other Transport Support Services	0.02%	0.04%	0.04%	0.06%	0.01%	0.08%

5201D Warehousing and Storage Services	0.04%	0.06%	0.07%	0.09%	0.01%	0.14%
5201M Margin - Water Transport Support Services	0.06%	0.08%	0.09%	0.13%	0.04%	0.18%
5401A Newspaper and Magazine publishing	0.05%	0.08%	0.08%	0.12%	0.02%	0.17%
5401B Book publishing	0.06%	0.10%	0.10%	0.15%	0.06%	0.21%
5401C Other Publishing	0.05%	0.07%	0.07%	0.11%	0.01%	0.16%
5401D Software Publishing	0.04%	0.07%	0.07%	0.10%	0.03%	0.14%
5501A Motion Picture and Video Activities	0.05%	0.07%	0.07%	0.11%	0.04%	0.15%
5501B Sound Recording and Music Publishing	0.05%	0.07%	0.07%	0.10%	0.07%	0.15%
5601A Radio Broadcasting	0.05%	0.08%	0.08%	0.11%	-0.01%	0.17%
5601B Television Broadcasting	0.06%	0.09%	0.09%	0.13%	0.01%	0.19%
5701A Internet Publishing and Broadcasting	0.06%	0.08%	0.09%	0.13%	0.02%	0.19%
5701B Internet Service Providers and Web Search Portals	0.06%	0.10%	0.10%	0.15%	0.04%	0.21%
5701C Data Processing, Web Hosting and Electronic Information Storage Services	0.05%	0.07%	0.07%	0.11%	0.02%	0.16%
5801A Wired Telecommunications Network Operation	0.05%	0.07%	0.08%	0.11%	0.02%	0.16%
5801B Other Telecommunications Network Operation	0.05%	0.07%	0.08%	0.11%	0.03%	0.16%
5801C Other Telecommunications Services	0.05%	0.07%	0.07%	0.10%	0.02%	0.15%
6001A Libraries and Archives	0.02%	0.04%	0.04%	0.06%	0.03%	0.08%
6001B Other Information Services	0.01%	0.01%	0.01%	0.02%	0.00%	0.03%
6201A Banks, building societies, credit unions	-0.05%	-0.08%	-0.14%	-0.20%	-1.61%	-0.17%
6201B Other Depository Financial Intermediation	0.08%	0.11%	0.13%	0.19%	0.38%	0.25%
6201C Non-Depository Financing	0.05%	0.07%	0.08%	0.11%	0.04%	0.16%
6201D Financial Asset Investing	0.13%	0.20%	0.23%	0.33%	0.80%	0.43%
6301A Life Insurance	0.26%	0.38%	0.45%	0.65%	1.53%	0.84%
6301B Health Insurance	0.26%	0.38%	0.45%	0.65%	1.53%	0.84%
6301C General Insurance	0.12%	0.18%	0.21%	0.30%	0.60%	0.40%
6301D Superannuation Funds	0.26%	0.38%	0.45%	0.65%	1.53%	0.84%
6301M Marine insurance provision (Margin)	0.03%	0.05%	0.04%	0.06%	-0.28%	0.11%
6401A Financial Asset Broking Services	0.04%	0.06%	0.07%	0.10%	0.22%	0.14%

6401B Other Auxiliary Finance and Investment Services	0.07%	0.10%	0.12%	0.18%	0.45%	0.23%
6401C Auxiliary Insurance Services	0.03%	0.05%	0.05%	0.08%	0.00%	0.11%
6601A Goods and Equipment Rental and Hiring	0.05%	0.07%	0.07%	0.10%	0.00%	0.15%
6601B Non-Financial Intangible Assets (Except Copyrights) Leasing	0.05%	0.08%	0.08%	0.12%	0.00%	0.18%
6701A Residential Property Operators: owner-occupied	0.03%	0.04%	0.03%	0.05%	-0.14%	0.08%
6701B Residential Property Operators: rented	0.03%	0.04%	0.04%	0.05%	-0.14%	0.08%
6702A Non-Residential Property Operators	0.03%	0.05%	0.05%	0.07%	0.01%	0.10%
6702B Real Estate Services	0.04%	0.06%	0.06%	0.09%	-0.06%	0.13%
6901A Scientific Research Services	0.04%	0.05%	0.05%	0.08%	-0.01%	0.12%
6901B Architectural Services	0.04%	0.06%	0.06%	0.09%	-0.04%	0.13%
6901C Surveying and Mapping Services	0.04%	0.05%	0.05%	0.08%	-0.03%	0.12%
6901D Engineering Design and Engineering Consulting Services	0.04%	0.06%	0.06%	0.09%	-0.01%	0.13%
6901E Other Specialised Design Services	0.05%	0.07%	0.08%	0.11%	0.02%	0.16%
6901F Scientific Testing and Analysis Services	0.05%	0.07%	0.07%	0.10%	-0.02%	0.15%
6901G Legal Services	0.04%	0.06%	0.06%	0.09%	0.00%	0.14%
6901H Accounting Services	0.05%	0.08%	0.08%	0.11%	0.01%	0.17%
6901I Advertising Services	0.04%	0.07%	0.07%	0.10%	0.01%	0.15%
6901J Market Research and Statistical Services	0.04%	0.06%	0.06%	0.09%	0.02%	0.12%
6901K Corporate Head Office Management Services	0.07%	0.10%	0.10%	0.15%	-0.02%	0.22%
6901L Management Advice and Related Consulting Services	0.04%	0.06%	0.07%	0.10%	0.00%	0.14%
6901O Veterinary Services	0.08%	0.11%	0.12%	0.17%	0.03%	0.25%
6901P Professional Photographic Services	0.06%	0.09%	0.09%	0.13%	0.02%	0.19%
6901Q Other Professional, Scientific and Technical Services n.e.c.	0.04%	0.06%	0.06%	0.09%	0.01%	0.14%
7001Z Computer Systems Design and Related Services	0.03%	0.04%	0.04%	0.06%	-0.01%	0.09%
7210A Employment Placement and Recruitment Services	0.03%	0.04%	0.04%	0.06%	0.01%	0.09%

7210B Labour Supply Services	0.04%	0.06%	0.06%	0.09%	0.01%	0.13%
7210C Travel Agency and Tour Arrangement Services	0.05%	0.08%	0.08%	0.12%	0.04%	0.17%
7210D Other Administrative Services	0.04%	0.07%	0.07%	0.10%	0.01%	0.15%
7310A Building Cleaning, Pest Control and Gardening Services	0.05%	0.07%	0.07%	0.11%	0.00%	0.16%
7310B Packaging Services	0.05%	0.07%	0.07%	0.10%	0.02%	0.15%
7501Z Public Administration and Regulatory Services	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%
7601Z Defence	0.00%	0.00%	0.00%	0.00%	0.00%	-0.01%
7701Z Public Order and Safety	0.01%	0.02%	0.02%	0.03%	0.01%	0.04%
8010A Preschool Education	0.04%	0.06%	0.06%	0.09%	0.05%	0.13%
8010B Primary Education	0.02%	0.03%	0.03%	0.05%	0.03%	0.06%
8010C Secondary Education	0.03%	0.04%	0.05%	0.07%	0.04%	0.09%
8010D Special School Education	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%
8110A Technical and Vocational Education and Training	0.03%	0.04%	0.04%	0.06%	0.05%	0.09%
8110B Higher Education	0.03%	0.04%	0.04%	0.06%	0.05%	0.09%
8210A Adult, Community and Other Education	0.05%	0.07%	0.07%	0.11%	0.07%	0.15%
8210B Educational Support Services	0.05%	0.08%	0.08%	0.12%	0.03%	0.17%
8401A Hospitals	0.02%	0.02%	0.02%	0.04%	0.02%	0.05%
8401B Medical Services	0.02%	0.03%	0.04%	0.05%	0.05%	0.07%
8401C Pathology and Diagnostic Imaging Services	0.02%	0.03%	0.03%	0.05%	0.03%	0.07%
8401D Dental Services	0.05%	0.08%	0.08%	0.12%	0.06%	0.16%
8401E Optometry and optical dispensing	0.05%	0.08%	0.08%	0.12%	0.06%	0.17%
8401F Other Allied Health Services	0.05%	0.07%	0.07%	0.10%	0.05%	0.15%
8401G Other Health Care Services	0.01%	0.02%	0.02%	0.02%	0.02%	0.03%
8601A Aged Care Residential Services	0.01%	0.02%	0.02%	0.03%	0.02%	0.04%
8601B Other Residential Care Services	0.03%	0.04%	0.04%	0.06%	0.04%	0.09%
8601C Child Care Services	0.04%	0.05%	0.06%	0.08%	0.06%	0.12%
8601D Other Social Assistance Services	0.02%	0.03%	0.03%	0.04%	0.03%	0.06%
8901A Museum Operation	0.01%	0.02%	0.02%	0.03%	0.02%	0.04%
8901B Parks and Gardens Operations	0.01%	0.02%	0.02%	0.03%	0.02%	0.04%

8901C Creative and Performing Arts Activities	0.05%	0.07%	0.07%	0.10%	0.03%	0.15%
9101A Sports and Physical Recreation Activities	0.05%	0.07%	0.07%	0.11%	0.04%	0.15%
9101B Horse and Dog Racing Activities	0.06%	0.10%	0.10%	0.15%	0.06%	0.21%
9101C Amusement and Other Recreation Activities	0.06%	0.09%	0.09%	0.13%	0.05%	0.19%
9201A Casino Operation	0.08%	0.12%	0.12%	0.18%	0.06%	0.26%
9201B Lottery Operation	0.08%	0.12%	0.13%	0.18%	0.06%	0.27%
9201C Other Gambling Activities	0.08%	0.11%	0.12%	0.17%	0.06%	0.25%
9401Z Automotive Repair and Maintenance	0.05%	0.07%	0.08%	0.11%	0.02%	0.16%
9402A Machinery and Equipment Repair and Maintenance	0.04%	0.06%	0.06%	0.09%	0.00%	0.13%
9402B Other Repair and Maintenance	0.06%	0.08%	0.09%	0.13%	0.03%	0.18%
9501A Personal Care Services	0.06%	0.08%	0.09%	0.13%	0.07%	0.18%
9501B Funeral, Crematorium and Cemetery Services	0.03%	0.05%	0.05%	0.08%	0.05%	0.11%
9501C Laundry and Dry-Cleaning Services	0.04%	0.06%	0.07%	0.10%	0.05%	0.14%
9501D Photographic Film Processing	0.04%	0.07%	0.07%	0.10%	0.02%	0.14%
9501E Parking Services	0.05%	0.08%	0.08%	0.12%	0.05%	0.17%
9501F Other Personal Services n.e.c.	0.05%	0.08%	0.09%	0.12%	0.07%	0.18%
9501G Private Households Employing Staff and Undifferentiated Goods- and Service-Producing Activities of Households for Own Use	0.06%	0.09%	0.09%	0.13%	0.07%	0.19%
9502A Religious Services	0.07%	0.10%	0.10%	0.15%	0.06%	0.22%
9502B Civic, Professional and Other Interest Group Services	0.06%	0.10%	0.10%	0.15%	0.04%	0.21%
Indirect taxes	0.05%	0.08%	0.08%	0.12%	0.02%	0.18%
<b>GDP</b>	<b>0.04%</b>	<b>0.05%</b>	<b>0.05%</b>	<b>0.08%</b>	<b>-0.05%</b>	<b>0.12%</b>

Source: Independent Economics

**Appendix C: AGA (Australian Government Actuary) “Towards More Efficient Retirement Income Products”**

# Review of Australian Government Actuary Paper to FSI

31 March 2015

## Background and Purpose

As part of the papers presented to the Financial System Inquiry (**FSI**), the Australian Government Actuary (**AGA**) provided a paper entitled, "Towards More Efficient Retirement Income Products" (**AGA paper**), the purpose of which was to look at the efficiency of retirement income products that can be purchased by retiring Australians with their accumulated superannuation money.

In particular, the paper included projections of the outcomes from a type of group self-annuitisation product (**GSA**), a form of mortality pooling product, as well as comparing it to a lifetime annuity product with payment amounts provided by the FSI based on pricing requested from Challenger.

While the AGA's paper provided some valuable information, it suffered from a number of weaknesses which led to:

1. the comparison of the GSA against the lifetime annuity being invalid; and
2. the variability of outcomes from the GSA being understated.

The purpose of this paper is to reproduce certain results of the AGA paper while correcting for these weaknesses.

In particular, the AGA's paper found that:

- the lifetime annuity payment was 15% lower than the median (50<sup>th</sup> percentile) outcome for the GSA (\$22,800 compared with \$26,900); and
- the probability that the GSA outperformed the lifetime annuity was 97%.

When these weaknesses are corrected:

- the lifetime annuity payment was 3% lower than the median (50<sup>th</sup> percentile) outcome for the GSA; and
- the probability that the GSA outperformed the lifetime annuity was 60%.

While the lifetime annuity still has a lower median outcome than the GSA, the difference is small and the benefit is the extra certainty provided through a guaranteed income. This is particularly important considering the need for retirees to meet on-going spending needs.

This paper concludes that:

1. While the AGA paper's conclusion that "the income from a lifetime annuity is very likely to be less, on average, than the income from a GSA" is correct, the difference between the lifetime annuity and GSA is substantially less than shown in the AGA paper analysis.
2. This difference, which is driven by the cost that a life company must bear in providing the capital to support all of the risks that it has taken on from an annuitant, is around 3% of payment amount (\$26,179 compared with \$26,913), rather than 15% of payment as determined in the AGA paper.
3. The range of outcomes from the GSA is wide, with a large proportion showing payment outcomes lower than the lifetime annuity.
4. In particular, the range of outcomes from these results shows very wide dispersion in later years. The results are more widely dispersed than the AGA paper results because the AGA paper ignores systematic mortality risk (the risk that the underlying rate of mortality for the population is different from expected).
5. In contrast, the lifetime annuity provides a guaranteed payment amount which does not change (in real terms) over the entire period.
6. Overall, this illustrates that a GSA results in the investor retaining significant risk (systematic longevity risks, investment risk and inflation risk) leading to uncertain and volatile future incomes that will be unsuitable for many retirees.

## Overview of AGA Paper

The AGA paper used a stochastic model to project future income streams which could be derived from an account based pension and a form of GSA.

The main features contemplated in the GSA were:

- retirees pay their accumulated superannuation balance at retirement into a "pool";

- each year, surviving retirees are paid an income from the pool according to a pre-determined formula;
- no death benefits are payable; and
- there is no scope to withdraw from the pool after commencement.

The stochastic modelling took account of:

- volatility of investment returns; and
- volatility of numbers of death in a population, assuming that the base mortality rates are correct.

The model assumed a closed pool of 500 lives, all 65 year old males at commencement, and all contributing \$400,000 into the pool. The stochastic modelling was based on 1,000 scenarios.

The resulting income streams were also compared to a payment on a lifetime annuity, the payment amount of which was supplied by the FSI, based on pricing requested from Challenger. This included a product comparisons table (Table 2 on p41) which showed that:

- the lifetime annuity payment was 15% lower than the median (50<sup>th</sup> percentile) outcome for the GSA (\$22,800 compared with \$26,900); and
- the probability that the GSA outperformed the lifetime annuity was 97%.

The report also concluded:

- “By pooling longevity risk a GSA provides an efficient means of reducing idiosyncratic longevity risk. As a result a GSA can deliver retirement incomes that are, in expectation, about 40 per cent higher than from an account-based pension drawn down at minimum rates. Importantly, this result can be achieved without any increase in the risk of outliving savings. In effect, the GSA distributes money that would otherwise be applied to bequests to other retirees.”
- “A traditional lifetime annuity delivers guaranteed level retirement income in retirement. The price of the guarantee means that the income from a lifetime annuity is very likely to be less, on average, than the income from a GSA.”

For the purposes of this paper, we have focussed on the relationship between the outcomes of the modelled GSA and a lifetime annuity. We have therefore ignored the outcomes with respect to account-based pensions.

## Weaknesses in AGA's Approach

While the AGA's paper provided some valuable information, it had a number of weaknesses including:

1. The projection of mortality underlying the GSA outcomes did not allow for all mortality risks.
2. The lifetime annuity payment, which was based on pricing requested from Challenger, was calculated on a basis which is inconsistent with the basis used to project the GSA.
3. The investment return model assumed a mean-reversion of returns, leading to distortions in the projections.

### Allowance for Mortality Risks

Mortality risk is the risk arising from the uncertainty of how many people from a group will die in a particular period. Mortality risk can arise from either idiosyncratic risk or systematic risk.

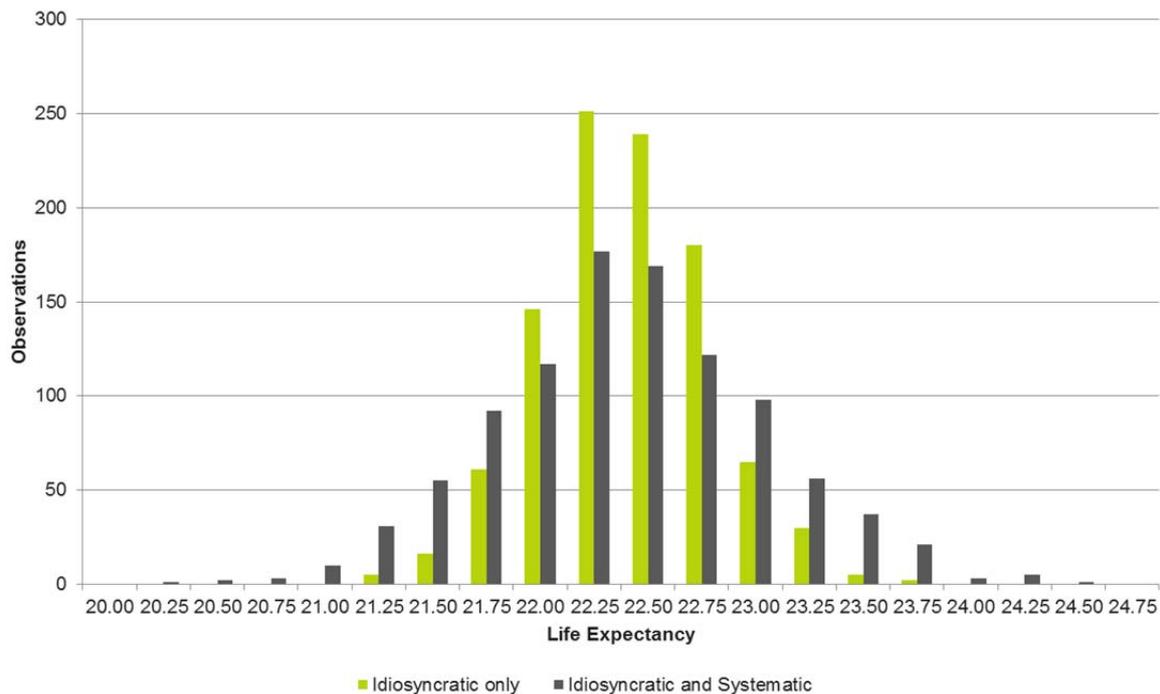
Idiosyncratic risk is the risk of how long a particular individual will live. While the number of deaths in a portfolio can be reasonably predicted, assuming that the underlying mortality rate has been correctly determined, the particular individuals who die each year is less predictable. For example, in a portfolio of 1000 lives, all of whom have a probability of dying in the year of 1%, we would expect to see 10 deaths in a year, but we cannot say at outset which specific individuals this will be. The actual number of deaths arising in any particular year could vary, in most cases, between say 5 and 15.

Systematic risk is the risk that the underlying rate of mortality for the population is different from expected. Extending the previous example, this would mean that the probability of dying in a year could actually be 0.9% rather than 1%. This could arise from an initial mis-estimation of the mortality rate, however it is particularly important in long term projections as the rate of mortality improvement is uncertain. As a result, the actual mortality rate in future years could be substantially different from expected.

In the AGA report, the projection of mortality underlying the GSA outcomes only allowed for idiosyncratic longevity risk. A GSA pools idiosyncratic longevity risk across members, while retaining systematic risk within the pool. The AGA report, however, did not allow for systematic longevity risk, and as a result the variability of outcomes from the GSA is understated.

To illustrate, the following chart sets out the distribution of observations of average years of life arising from 1,000 simulations, where allowance is made for idiosyncratic risk only, compared with allowance for both idiosyncratic and systematic risk (based on the Go-Ma model as discussed later). It can be seen that the distribution of outcomes is wider where allowance is made for both risks.

### Distribution of Life Expectancy Observations



This is particularly important when comparing the outcomes from a GSA against a lifetime annuity. In contrast to a GSA, an investor in a lifetime annuity transfers all longevity risk, both idiosyncratic and systematic, to the life company. A life company is required to hold capital to support the risks that it bears, which is often cited as a cost to lifetime annuities. However, across a portfolio of lives the idiosyncratic risk is relatively small for the life company. The major driver of the capital requirement is the systematic risk. Overall, this means that any comparison of the outcomes of a lifetime annuity and a GSA which ignores systematic longevity risk will be invalid.

### Payment Amount for Lifetime Annuity

The AGA's paper made a comparison of the outcomes of its GSA projections with the amount payable under a lifetime annuity, as provided to the AGA by the FSI.

This comparison was invalid because the mortality rates underlying the different products were different. Further, although less materially, the investment conditions assumed in the pricing of the annuity and the projection of the GSA were inconsistent.

By way of background, if purchasing a lifetime annuity, in particular one that does not provide for any death benefits or the ability to withdrawal, investors will only purchase the product if they expect to live a long time. If someone is unwell, they are very unlikely to purchase such a product because of the risk of losing capital on death. As a result, portfolios of lifetime annuities tend to have very low rates of mortality when compared to the general population.

In the case of the lifetime annuity rates provided by the FSI to the AGA, the amount payable was calculated by Challenger based on what was termed a "functioning market". This was considered to be a larger market for annuities than currently exists, but still a relatively select market, resulting in

mortality rates that are higher than current annuity mortality rates, while still being lower than population mortality rates.

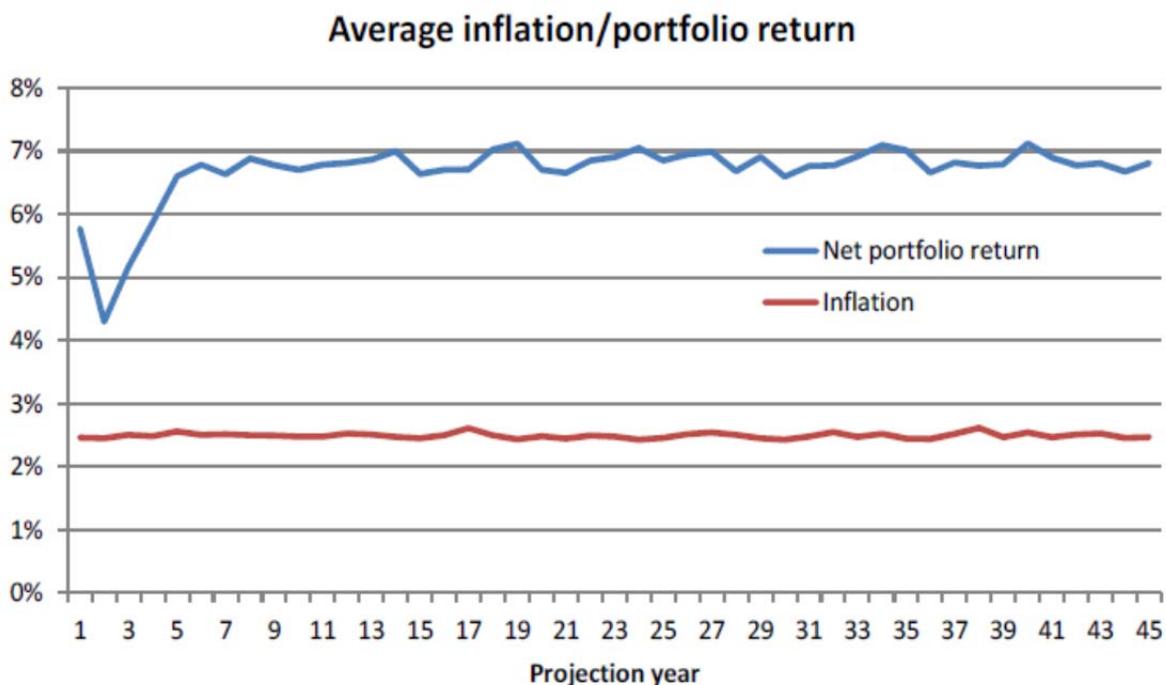
In contrast, the GSA projections were based on population mortality rates.

The GSA contemplated in the AGA report did not allow any benefits to be payable in the event of death of an investor, nor for there to be any option to voluntarily withdraw. As a result, the GSA would attract healthier lives and therefore the mortality rates of the GSA pool would be similar to the lifetime annuity's mortality rates. The assumption of different mortality rates for the projections in the AGA paper therefore resulted in an invalid comparison of outcomes.

## Investment Return Model

The AGA paper included stochastic projections of future investment returns, derived from a Wilkie model. This model assumes there is some identifiable mean return from markets and that, where current returns vary from this mean, they will revert to the mean in a relatively short period.

This mean reversion is illustrated in the chart on page 53 of the AGA paper (reproduced below), which shows initial losses being made, followed by relatively smooth future earnings. These initial losses are, in the main, driven by an assumption that interest rates will revert to long term averages in the next few years.



This assumption leads to distortions in the outcomes, particularly where the existing market rates are significantly different from the assumed long term averages. It is also not appropriate to include short term market conditions as part of a paper designed to compare the long term characteristics of different product types.

## Approach in this Paper

For the purposes of this paper, we have sought to reproduce the projections from the AGA paper while adjusting for the weaknesses in the paper as set out above.

The way in which this has been done is as follows:

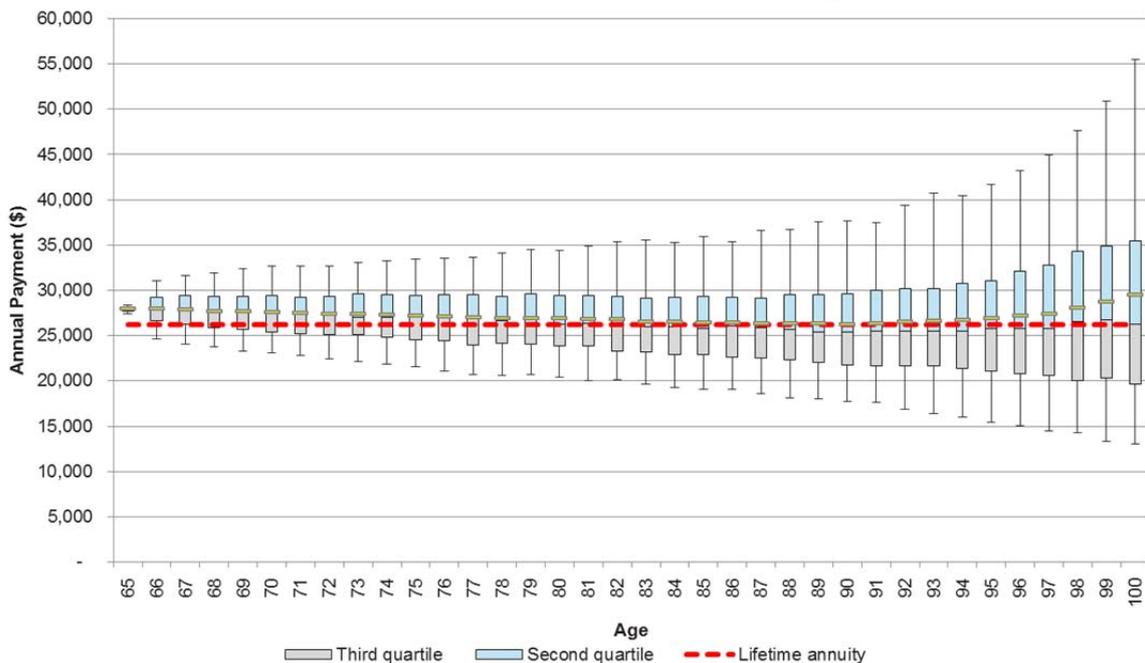
1. We have built a stochastic projection model that can model variability of investment returns, idiosyncratic longevity risk and systematic longevity risk.

- For investment returns, we used an adjusted version of the SUPA model developed by Sneddon, Zhu and O'Hare<sup>1</sup> as part of the CSIRO Monash Superannuation research cluster. This is a Wilkie model built on a similar basis to the Wilkie model used in the AGA paper. The output from this model was compared with the charts in the AGA paper and it was found that the AGA paper's investment returns showed significantly lower volatility than the SUPA model. As a result, we needed to calibrate the SUPA model to produce similar outcomes to the AGA paper. Further, in order to remove the distortion of the early mean reversion as illustrated by the chart above, we removed the first five years of returns from the model. This results in the model commencing from a "mean-reverted" state.
- We used a stochastic mortality model put forward by Qiao and Sherris<sup>2</sup> (**Go-Ma model**). This model, which is calibrated to the human mortality database rather than Australian mortality, produced, on average, higher mortality rates than the AGA paper, so the rates were adjusted to calibrate back to the mortality rates in the AGA paper.
- The model used the same GSA product design as was used in the AGA paper. This design assumes that payments to investors each year are determined by a set of annuity factors which are derived based on the expected investment and mortality outcomes of the pool. We have used these same annuity factors.
- We have recalculated a payment amount for the lifetime annuity using the same mortality basis as underlies the GSA projections, in order to provide a valid like-for-like comparison. This means that mortality rates are higher than assumed in the annuity payments provided by the FSI, to reflect the higher mortality rates of the general population as per the AGA paper. While these are not the mortality rates that we would expect to apply in practice for either the GSA or lifetime annuity, it is important that the projections are calculated on the same basis to allow comparability.

The resulting projections are shown in the chart below. The chart from the AGA paper is shown for comparison purposes.

## Results

### GSA Outcomes vs Lifetime Annuity

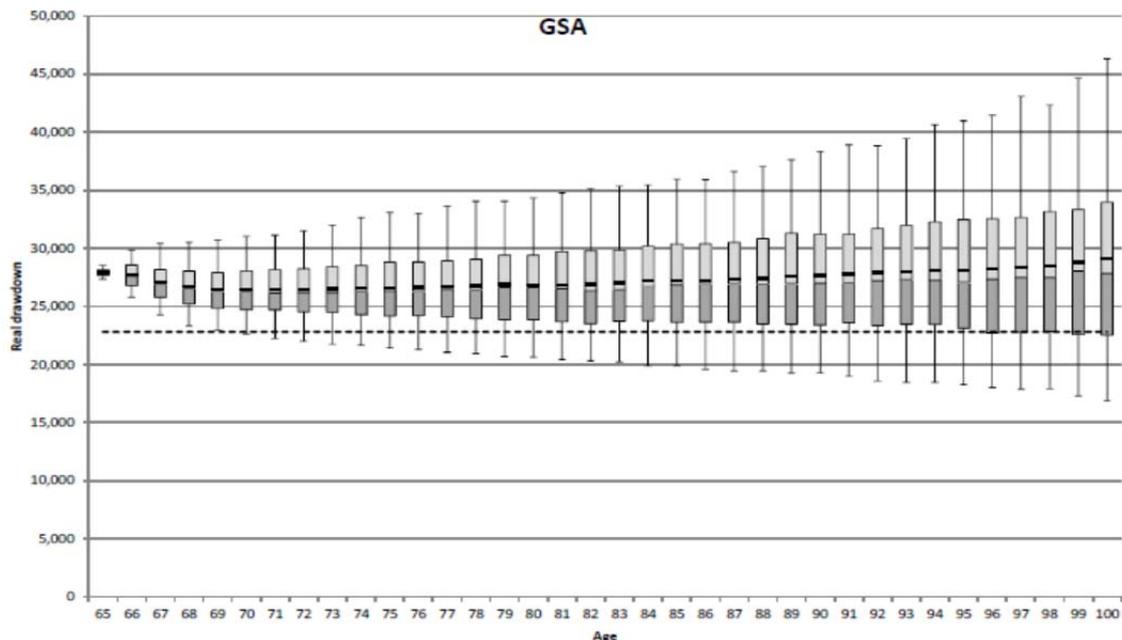


<sup>1</sup> Thomas Sneddon, Zili Zhu, Colin O'Hare, "Modelling retirement outcomes: a stochastic approach using Australia as a case study", working paper

<sup>2</sup> Chao Qiao and Michael Sherris, "Managing Systematic Mortality Risk with Group Self Pooling and Annuitisation Schemes", ARC Centre for Excellence in Population Ageing Research, Working Paper 2011/4

## AGA Paper

Figure 10: Group self annuity distribution of annual income



These charts show:

1. At each age, the range of outcomes for the GSA. The line at the centre of the boxes shows the median outcome, while the boxes show the 25th and 75th percentiles of outcomes. The lines extending from the boxes show the 5th and 95th percentiles of outcomes. The darker line in the boxes shows the mean outcome.
2. The payment amount for a lifetime annuity is now on a comparable basis: that is, using the same mortality and investment return environment as the GSA projection.
3. All payments amounts are shown in real terms.
4. The payments arising from the GSA under the Challenger results are generally higher than in the AGA paper. The reason for this is that the mean reversion within the AGA paper investment model leads to early losses.

These charts illustrate that:

1. While the AGA paper's conclusion that "the income from a lifetime annuity is very likely to be less, on average, than the income from a GSA" is correct, the difference between the lifetime annuity and GSA is substantially less than shown in the AGA paper analysis.
2. This difference, which is driven by the cost that a life company must bear in providing the capital to support all of the risks that it has taken on from an annuitant, is around 3% of payment amount (\$26,179 compared with \$26,913), rather than 15% of payment as determined in the AGA paper.
3. The range of outcomes from the GSA is wide, with a large proportion showing payment outcomes lower than the lifetime annuity.
4. In particular, the range of outcomes from these results shows very wide dispersion in later years. The results are more widely dispersed than the AGA paper results because the AGA paper ignores systematic mortality risk.
5. In contrast, the lifetime annuity provides a guaranteed payment amount which does not change (in real terms) over the entire period.
6. Overall, this illustrates that a GSA results in the investor retaining significant risk (systematic longevity risks, investment risk and inflation risk) leading to uncertain and volatile future incomes that will be unsuitable for many retirees.

## **Appendix D: UNSW Australia Business School Retirement Planning Course**



# Business School

## Retirement Planning Courses

Never Stand Still

Business School

Risk and Actuarial Studies

### **ACTL5401 Retirement Planning/ACTL5402 Retirement Planning Online – update**

#### **Background**

In 2014 UNSW Business School introduced the course ACTL5401 Retirement Planning. This is an elective course, delivered in face-to-face mode in the Certificate, Diploma and Master of Financial Planning programs and may be taken as an elective in other postgraduate coursework degrees offered by UNSW Business School. It is designed to supplement the existing suite of courses required under RG146 by providing specific training in retirement planning, and specifically retirement risk management.

The course may also be taken on a 'non award' basis, and as such is specifically targeted to existing financial planners.

From 2015 this course is accompanied by a fully online version (called ACTL5402 Retirement Planning Online), which covers exactly the same material in online mode, using Smart Sparrow's Adaptive eLearning Platform. The online version may also be taken by both award and non-award students. Enrolment in the online version will not be restricted by the standard university calendar. Students will be able to enroll at any time, and will be given the equivalent of a standard teaching semester (13 weeks) to complete the course. Its online delivery mode will greatly increase the accessibility of the course.

#### **Overview**

The Retirement Planning course (both face-to-face and online versions) imparts the knowledge necessary to provide effective financial advice for retirement planning in the context of increasingly complex financial products and government policies. A novel feature of the course is the integration of key retirement risks in retirement planning as well as consideration of behavioural biases which may influence advisor and client perceptions and behaviour.

The course covers the presentation, evaluation and implications of retirement risks including longevity risk, inflation risk, interest rate risk, adequacy (replacement) risk, contingency risk and political risk; the design and features of superannuation and retirement income policies and products; the public age pension and other publically provided benefits and their interaction with superannuation and other retirement benefit products; financing aged care; estate planning; understanding consumer behaviour; and designing a 'retirement plan'.

The official UNSW Course Outlines for ACTL5401 Retirement Planning (the standard face-to-face version) and ACTL5402 Retirement Planning Online (the online version, taught using interactive simulations) are attached.

#### **Online version – a unique approach to learning**

The online version has been developed from the course material for the standard (face-to-face) delivery version using Smart Sparrow's Adaptive eLearning Platform, a software platform that lets the user create adaptive lessons. The approach to learning is to adapt the content the students see based on their own displayed competency.

Three levels of adaptivity have been built into the platform and are used within the course:

- Adaptive feedback based on what the student does and knows;

- Adaptive pathways that offer varying sequences of content to each student; and (after the course has been deployed)
- The ability for the instructor to adapt the content based on an analysis of how their students learn.

The course takes the 'learning by doing' approach in that students have the opportunity to learn key concepts whilst using highly interactive simulations. These simulations are built on a robust data model that provides real time visualisation of the student's choices. They are quite literally put into the position of a retirement planner and must utilise all of their skills to complete their required tasks.

### ***Structure of the Course***

The course will take students on a journey. On this journey, they will have to face a series of new challenges and activities. The ultimate goal is to better assist retirees to plan for their retirement.

**The aim is to help (future) professional financial planners to develop and communicate effective and appropriate retirement planning strategies within the current Australian policy framework.**

The course is separated into two 'phases' with the goal to respectively fill students' knowledge and skills gap. The focus of the first phase is to make sure students understand and master the required knowledge essential for this job and only then they will proceed to the second stage, where they will be presented hypothetical clients that they will have to advise and handle themselves (something that only experience can teach efficiently).

In addition to that, a series of very short single learning experiences will be developed as individual lessons to support the main learning experiences.

The course is designed around four main lessons – Introduction, Retirement Risks, Drafting a Statement of Advice, and Case Studies. Students will work sequentially through the main lessons.

These four main lessons are supplemented by 12 mini lessons covering: The Age Pension, Transition to Retirement, Risk Typology, Taxation of Superannuation, Retirement Products, the Statement of Advice, Financing Aged Care, Institutional Framework, Understanding Life Expectancies, Demographic Trends, Consumer Behaviour and Client Profiling.

Despite the different delivery style, the content is exactly the same as in the face-to-face version.

### **Experience to date**

A pilot version of the course was run in intensive format over 6 days in June 2014 and then a full session face-to-face version of the course was offered in Session 2, 2014. These two offerings allowed for comprehensive testing and development of the 'new' course material in face-to-face model. A third offering of the course is currently underway (Session 1, 2015). If demand warrants, the course will be offered in each session (ie, twice a year) from now on.

Simultaneously, a fully online version of the course has been developed through Smart Sparrow (e-learning specialists). The online version is currently being comprehensively piloted in conjunction with the face-to-face version offered this session (Session 1, 2015). This testing enables issues associated with the complex simulation models underlying the interactive learning activities and any misunderstandings of the core course materials by the educational designers at Smart Sparrow, to be addressed.

Following the comprehensive testing, the online course will be open to its first cohort of students in June 2015.